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LECTURES
ON
MEDICAL JURISPRUDENCE,
NOW IN COURSE OF DELIVERY
AT THE
UNIVERSITY OF LONDON.

BY PROFESSOR A. T. THOMSON.

LECTURE IV.

Surgeons attending Duels.—Confessions under Doubts of the Loss of Life.—Inadequate Medical Evidence at Inquests.—Circumstances which render Medical Men incompetent Witnesses.—Personal Interest in a Verdict.—Proofs of Legal Medical Qualification.—Demeanour in giving Evidence.—Slander on Medical Character.—Nature of the English Courts of Justice.—Lawyers employed in them.—Counsel's Liberty of Speech.—Forms of Prosecutions.—Negligence of Subpœnas.

GENTLEMEN:—In my last lecture I mentioned the case of Mr. PETTIGREW, the surgeon, who was kindly cautioned by the Judge, in a trial for murder by duelling, to be extremely cautious in answering questions which might criminate himself, as every surgeon who went out with a party about to fight a duel, being antecedently privy to the intention, was an aider and abetter of the murder; but I forgot to state that a surgeon of considerable eminence, the late Mr. HEAVISIDE, who attended, in his professional capacity, a duel between Colonel MONTGOMERY and Captain MAC NAMARA, in which the Colonel fell, was, on this account, actually arrested, and sent to Newgate, under a warrant from the civil magistrate. He remained in prison until the grand jury had rejected the indictment.

Many cases might be brought forward to illustrate the necessity of dying declarations being received only under the full conviction that the parties making them are truly aware that death is inevitable, as otherwise they cannot be received as evidence, in any legal investigation into the point at issue. It is scarcely necessary to say, that no part of the duty of medical men demands more discretion and sounder judgment, than the receiving such declarations from dying men. I cannot exemplify this remark better than by bringing before you the evidence of a most respectable physician, Dr. DARLING, on the trial of Mr. CHRISTIE and Mr. TRAIL, for the murder of Mr. SCOTT, who fell in a duel with Mr. CHRISTIE, to whom Mr. TRAIL was second. Dr. DARLING was not present at the duel, but he afterwards professionally attended Mr. SCOTT. He was put into the witness'-box to detail the dying declaration of his unfortunate patient, with the view of identifying the prisoners as the murderers of that gentleman; but his statement was not received as evidence, because the language of Dr. DARLING to his patient had kept alive, in Mr. SCOTT's mind, a faint ray of hope of recovery. "The deceased," said Dr. DARLING, in reply to a question put by the court, as to the precise condition of Mr. SCOTT at the moment of his making his declaration to the witness,—"the deceased asked me," said he, "if his wound was necessarily mortal. Upon which I told him that his case was one of extreme danger; but that there had been instances where persons had recovered under such a wound." To which Mr. SCOTT replied, "I am satisfied." As this conversation took place before the unfortunate gentleman's statement, which was to have been delivered in evidence, was made, Lord TENTERDEN and Mr. Justice PARK considered that it could not be admitted as evidence, because the remark of the physician was calculated to kindle a *ray of hope* in the mind of the dying man; thence his declaration could not truly be affirmed to have been made *in articulo mortis*.

Mr. AMOS, in his published lectures, mentions another instance of the absolute necessity of the conviction of the immediate approach of death on the mind of the deponent, before the dying declaration can be admitted as evidence. A female died by taking poison at the instigation of the father of her child, which was illegitimate. She related all the circumstances shortly before her death; but her declaration was not admitted as evidence, because after it was made she had requested that more medicine should be sent for; a circumstance

which afforded the presumption that some idea of recovery then existed in her mind, and that the declaration was not delivered until after every gleam of hope was extinguished.

These instances are sufficient to display to you, Gentlemen, the line of conduct which ought to be pursued in taking dying declarations.

The competency of medical witnesses, as I have already stated, is founded upon the same circumstances which attach to ordinary witnesses, namely, ability to answer the questions put to them; but in this respect, there must be some modification of the ordinary mode of judging, inasmuch as the witness is called upon to speak both to *facts* and to *opinions*. Verdicts, nevertheless, have been delivered by coroners' juries, who are too often very ignorant men, founded upon the most inadequate medical evidence. In proof of this assertion I will now lay before you an examination at an inquest, on the body of a woman named ELIZABETH HILLIER, who was supposed to have committed suicide by taking oxalic acid.

The deceased was nineteen years of age. I must be excused from naming the practitioner who was examined in this case; although if I named him I could not be accused of any unfriendly feeling, as I have never seen him, and only saw the statement of the inquest in the public newspapers: it occurred several years ago. Neither do I intend to impugn the correctness of the verdict, but merely to comment upon the evidence, as in my opinion the verdict was not legal, if founded on the medical testimony.

The medical gentleman called in, when the effects of the poison were demonstrated, found a glass which contained a few drops of some strong acid, and he also perceived that the gown of the deceased displayed marks of an acid having been dropped on it. This evidence was sufficient to verify the suspicion that the poison was an acid; but it was defective, inasmuch as no experiments were made to determine the kind of acid. If only a single drop of the solution remained in the glass, or if there had been no other evidence but the marks on the gown, the witness should have determined, by experiment, the nature of the acid.

The second part of his evidence went to state, that the woman might have died from taking a strong acid; but this could only be determined by opening the body, which was not done. The fact of the acid found in the glass, and of the marks on the gown, was demonstrative only that an acid had been used by the deceased; but these facts afforded no satisfactory proof that the death of the woman was the result of swallowing that acid. A paper was found, torn, having the word "Pois. oxal." printed upon it. This strengthened the suspicion that oxalic acid was the poison which the unfortunate woman had taken; but it afforded no real evidence of the fact, as the body was not opened, which was requisite, to determine not only the fact of poisoning, but also to ascertain the cause. It was asserted also, that she was in the family way, an assertion which the post-mortem examination would have determined; but the only evidence, to gainsay this was the loose opinion of a woman who was acquainted with the girl. Nevertheless, on this defective evidence the jury brought in a verdict—"That the deceased had died from taking oxalic acid, being at the time in a state of temporary derangement." Now, let us examine the grounds upon which this verdict rested.

1. There was no evidence that she was poisoned, except the presumptive evidence, that she was apparently well an hour before she died; that she suddenly died; and, further, that a glass with some strong acid was found near her.

2. No evidence was advanced to prove the nature of that acid, except the paper which was found with the words "Pois. oxal." upon it.

3. There was not one tittle of evidence that she was deranged.

4. The cause of the suicide—if it were suicide—was not investigated.

Need I add, Gentlemen, how disgraceful such a proceeding was, both to the professional witness and to the court?

The circumstances that render witnesses incompetent, and which apply to medical as well as to ordinary witnesses, are—

1. Defect of reason, or understanding.

2. Defect of religious principle, on the correct plea, that nothing can bind the consciences of Atheists and Infidels, who profess no religion, to speak the truth.

3. Conviction of certain crimes, and infamy of character.

4. Interest; that is, where there is a certain benefit or disadvantage to the witness attending the consequences of the cause in one way.

I shall only notice the last of these circumstances, because the others do not refer more particularly to medical than to general witnesses. Let us suppose a question to arise, whether a testator was capable of executing a will. It is justly presumed that "a professional witness, a medical man, has an interest in proving the capacity, for the fact that he had witnessed a will, executed by one utterly incapable of making one, would affect his professional character." STARKIE, from whom this remark is taken, adds—"Such observations apply only in those cases of doubt and suspicion where the evidence is of a conflicting nature."

Again; let us suppose another case. Two medical men are practising in the same

country town; a case occurs in which the testimony of the one is required, and the other is the defendant. In such a case the medical witness cannot be said to be a disinterested individual, and consequently his testimony ought to be regarded as involving a doubt, and should be received with much caution.

The quantity of interest involved in the issue does not alter the incompetency; a person who loses or who gains the smallest sum by the event of a law-suit, whatever may be his rank, fortune, or character, is as incompetent to give evidence, as one who may be interested to the amount of thousands. If interest disqualifies in any case, it must in all, as it is impossible, by any scale, to measure the different effects which it may have on different minds. In the last case which I have supposed, the interest is not immediate; but, nevertheless, it is sufficient to influence the testimony of a man not strictly conscientious.

The fact of a witness being a medical man may be questioned, in which case it is necessary to prove the qualification of the witness. The common seal of the Company of Apothecaries, in London, is regarded as sufficient proof of the authenticity of the certificate to which such seal is affixed; the degree of "Doctor of Medicine" may be proved by the original book of the University, in which the entry of the degree is contained; or, if this be not easily procured, it may be proved by an examined copy of that book. If the diploma be put in as proof, and it bear the University seal, then the instrument must be properly authenticated, and proved by legal evidence; the seal must be authenticated by one who knows it to be the seal of the University. If the instrument is produced as a copy of the original act of the University, it must be proved in the usual way as a copy. It cannot be proved by a certificate from the professors, testifying the granting of the diploma, and the affixing of the University seal.

I have only further to add, in reference to the examination of medical witnesses, the necessity of maintaining a becoming demeanour in delivering testimony, as the opposite proceeding not only reflects discredit on the individual, but on the profession. And this refers both to the examination-in-chief and to the cross-examination. An over-forward and hasty zeal on the part of the witness in giving testimony which will benefit the party whose witness he is; any exaggeration of circumstances; a reluctance in giving adverse evidence; his slowness in answering; evasive replies; his affectation of not hearing, or not understanding the questions for the purpose of gaining time to consider the effect of his answer; precipitancy in answering, without waiting to hear or to understand the nature of the questions; inability to detail any circumstances wherein, if his testimony were untrue, he would be open to contradiction; or forwardness, in minutely detailing those where he knows contradiction to be impossible; and, finally, an affectation of indifference, are all, to a greater or less extent, marks of *insincerity*. On the other hand, promptness and frankness in answering questions, without regard to consequences, and especially an unhesitating readiness in stating all the circumstances attending the transaction, by which the witness may open a wide field of contradiction if his testimony be false, are, as well as numerous others of a similar nature, strong internal indications of *sincerity*.

In medical witnesses, nothing is so important as a becoming demeanour. What can be more annoying to a high-minded medical practitioner, than the rebuke of a judge to a member of the profession? On the trial of DONNELL, for the murder of Mrs. DOWNING, at Launceston, in March, 1817, Mr. JOHN TUCKER, a surgeon, at Exeter, was asked—"Now, supposing a person to have retchings and purgings for several hours, and that you found these attended with frequent and fluttering pulse, in that state of the illness, what should you have prescribed?" He replied, "I should have prescribed diametrically opposite to the prescription of Dr. EDWARDS; I should consider that prescribed by Dr. EDWARDS as adding weight to a porter's back." The judge, Mr. Justice ABBOTT, rebuked the witness in these words:—"Don't speak metaphorically; you are speaking just now of a gentleman of experience and respectability; I don't wish you to conceal your opinion, but only speak it in different language." It belongs to the prudence of the judge to check such testimony, but it would be more honourable to the profession that the exercise of his power was not called forth.

I have now to conclude these remarks with one topic of deep interest to us all, inasmuch as it is natural for every one to desire to appear in a proper point of view in society, I mean slander in medical character. Now, as the law permits no man to take away the moral reputation of another man, which to good men is dearer than life:

> "Who steals my purse steals trash, 'tis something, nothing;
> 'Twas mine, 'tis his, and has been slave to thousands;
> But he that filches from me my good name,
> Robs me of that, which not enriches him,
> And makes me poor indeed."

So the law, also, protects the medical man in his professional reputation. An action may be brought against any person for calling a medical practitioner *a quack;* but in proving the libel a legal qualification must be proved. When the plaintiff's qualification depends on some documentary appointment, proof of the validity of this must be made evident, and is indispensable in consequence of the averments in the declaration.

So, in defending his character, a medical practitioner (suppose a physician) alleging that he had duly taken the degree of Doctor of Medicine; the allegation must be strictly proved by formal proof of the degree; and the same, if the practitioner be a licensed apothecary, by the licence of the Apothecaries' Company. In a case, *Pitchford* v. *Gutch*, tried before Mr. Justice BULLER, the judge pronounced that proof of the plaintiff having practised as a physician was not sufficient; and that it was necessary to produce the diploma. This shows the importance of those documents, which have too often been termed useless pieces of parchment, at least as long as the present law of libel exists.

Gentlemen: as your testimony whatever be the nature of the cases that demand it, is generally required for the express purpose of supporting some point in legal investigations, it is proper that you should have an idea of the nature of the various courts of justice to which you may be subpœned. In my endeavour to offer you this information, however, it is not requisite, nor would it be proper, to occupy your time in many details, highly interesting in themselves, but which belong rather to the *lawyer* than to the *medical jurist*. Neither is it necessary to mention many courts; those only in which you are likely to appear shall be briefly touched upon.

All courts may be arranged under two heads, namely, *civil* and *criminal*: — A *court* is defined (by Judge BLACKSTONE) to be "a place wherein justice is judicially administered: and, as by our excellent constitution the sole executive power of the laws is vested in the person of the king, it will follow that all courts of justice, which are the media by which he administers the laws, are derived from the power of the crown. For whether created by act of parliament, or letters patent, or subsisting by prescription (the only methods by which any courts of judicature can exist,) the king's consent in the two former is expressly, and in the latter impliedly, given. In all these courts the king is supposed, in contemplation of law, to be always present; but as that is, in fact, impossible, he is there represented by his judges, whose power is only an emanation of the royal prerogative." This definition gives an accurate idea of the reason of the term which is bestowed upon all courts, ancient or modern, which possess the power of fining, imprisoning, or inflicting penal punishment, namely, *King's Courts*. These are, in every instance, also, *Courts of Record*; that is, courts in which the acts and judicial proceedings are enrolled, in parchment, for a perpetual memorial and testimony. Whatever, therefore, is said or done in such courts relevant to the cause at issue, may at any future time be again brought forward, for or against, any plea that may be at any time set up. I mention this, Gentlemen, particularly to show you, that your testimony, delivered in these courts, is put upon record, and remains as an everlasting memorial against you, if it display either ignorance or an intention to deceive.

Courts not of Record are, in some instances, also King's Courts; but they cannot imprison a party for non-attendance, nor for a bare disobedience of their orders. Indeed, this distinction between Courts of *Record* and *not of Record* is founded on strict justice; for as the latter are chiefly baronial, or private courts, it will be highly improper to entrust them with any discretionary power over the fortunes or liberty of any man.

In every superior court, although a plaintiff, or a person criminally arraigned, may manage his own cause, yet, for the convenience of the public as well as the suitors, it has been customary to seek the remedies which these courts afford in cases of injury through others, whose business it is to enquire into all the facts of each complaint, and to support or destroy it, by the statements and evidence that they are thus enabled to lay before the judges and juries. These officers are named Attornies, and Advocates, or Counsel.

The former, the attorney, is a person who stands, in stead, or turn, of another, to manage his matters of law. Medical witnesses have something to do with these officers, for, as they collect all the facts of the complaint, or, as it is technically termed, the count, or tale, and also those of the defence or justification set up, the testimony upon which the future oral examination of the witness is to be founded is generally taken down in writing by the attorney previous to the trial. It behoves you, therefore, to recollect consistency in the details which you make to an attorney to carry on a cause, and that which you deliver in open court. In taking down testimony, attornies occasionally may mistake the meaning of expressions; thence the necessity of reading over yourselves the written testimony before signing it. I say *yourselves*, because it is not unusual to have it read over to the witness, either by the attorney or his clerk; a practice which is fraught with many inconveniencies, as far as relates to medical testimony.

It is, however, with the advocate that medical witnesses are chiefly concerned. Of whatever rank the advocate or counsel is, whether barrister or sergeant, if he undertake to plead he is bound by a solemn oath to do his duty to his client. The barrister stands, in fact, in the shoes or place of the suitor, whether plaintiff or defendant, in every case of civil law; and, consequently, the suitors, like the dependants of the ancient Roman orators, are called their *clients*. In criminal cases the counsel are present with the accused to aid or to council, or to act for the crown when it is the public pro-

secutor. Like physicians in our profession, they cannot maintain an action for fees, which are supposed to be given, not as salary or hire, but as an honorary gratuity, which a barrister cannot demand without degrading himself; "and, in order to encourage due freedom of speech in the lawful defence of their clients, and at the same time give a check to the unseemly licentiousness of prostitute and illiberal men, (a few of whom may sometimes insinuate themselves even into the most honourable professions), it hath been holden that a counsel is not answerable for any matter by him spoken, relative to the cause in hand, and suggested in his client's instructions, although it should reflect upon the reputation of another, and even prove absolutely groundless; but if he mentions an untruth of his own invention, or even upon instructions, if it be impertinent to the cause in hand, he is then liable to an action from the party injured. Counsel guilty of deceit, or collusion, are punishable by the statute of Westm. 1, 3 Edw. I., c. 29, with imprisonment for a year and a day; and to perpetual silence in the courts, a punishment still sometimes inflicted for gross misdemeanours in practice."

I mention this liberty of speech allowed to counsel, because it is often acted upon without due discretion, and generally with severity, towards medical men; barristers being well aware of the great weight of their evidence, when the character of the witness stands well in the estimation of the public. There is, also, a general difference and importance given to the opinions of medical witnesses by juries; thence the counsel of the adverse parties always endeavour to weaken the importance of medical testimony, if the witness be a young practitioner and little known, by attempting to lower his professional character. It is a great trial of patience to an honourable-minded man to be obliged to sit and listen to such insinuations, as are often thrown out against him by counsel, in open court; but, although he cannot rise in his place in court to rebut them, yet he has a claim upon the protection of the court, which he can demand whenever he is put into the witness-box, and in the same manner he can prevent counsel from brow-beating him in cross-examination.

Besides attornies and counsel, juries often put questions to witnesses. The jury, you are all aware, is a body of twelve, or more, respectable men, selected according to an ancient custom among all northern nations, to hear the merits of the case, and to pass judgment upon it. "The pleadings are opened to them by counsel on that side which holds the affirmative of the question at issue, but as in law the issue is always said to lie, the proof on the same side is required and gone through; and when it is completed, the counsel on the other side opens the adverse case, and supports it by evidence; and, lastly, the party which began is again heard, by way of reply." In this investigation there are many "niceties and distinctions of what is, or is not, legal evidence to a jury," some of which it is requsite that you should know, and they shall be brought before you in their proper places.

The judges are appointed to regulate the whole proceedings, to expound the law as applicable to the facts, and to decide upon all interlocutory matters which arise collaterally in the course of the trial.

Let us now look into the nature of the courts. In doing so it is only necessary to bring before you those into which you are likely to be summoned as witnesses. The first which I shall notice is that termed the *Court of King's Bench*. It is thus described by BLACKSTONE:—"The Court of King's Bench (so called because the king used formerly to sit there in person, the style of the court still being *coram ipso rege*) is the supreme court of common law in this kingdom, consisting of a chief-justice and three puisné justices, who are by their office the sovereign conservators of the peace, and supreme coroners of the land. Yet, though the king himself used to sit in this court, and still is supposed so to do, he did not, neither by law is he empowered to, determine any cause or motion but by the mouth of his judges, to whom he hath committed his whole judicial authority. The jurisdiction of this court is very high and transcendent. It takes cognizance both of criminal and civil causes; the former in what is called the *crown-side*, or crown-office, the latter, in the *plea-side* of the court. But on the plea-side, or civil branch, it hath an original jurisdiction and cognizance of all actions of trespass, or other injury, alleged to be committed *vi et armis;* of actions for forgery of deeds, maintenance, conspiracy, deceit, and actions which allege any falsity or fraud: all of which savour of a criminal nature, although the action is brought for a civil remedy, and makes the defendant liable, in strictness, to pay a fine to the king, as well as damages to the injured party."

On the crown-side, or crown-office, the King's Bench Court takes cognizance of all criminal causes, from high treason down to the most trivial misdemeanour, or breach of the peace. It is, therefore, the principal court of criminal jurisdiction known to the laws of England. Into it reverted all that was good of the ancient Court of Star Chamber, in which the causes were tried without the intervention of a jury, and which was abolished in the 16th of CHARLES I., to the general joy of the whole nation. It is in this side of the Court of King's Bench that you are most likely to be called as witnesses.

The prosecutions are by *indictment*, that is, by a written accusation of a crime or misdemeanour preferred to, and presented

upon oath by a grand jury, which, previous to the trial, sit and hear all the evidence o behalf of the prosecution, so as to enable them to determine whether there be sufficient cause to send the case to trial. You may be supœned to attend the grand jury as a witness, as well as on the trial after the indictment is found, when the accused is brought to answer the charge. In such a case you may be one of many witnesses, or you may be the sole witness; and cases may occur in which not only your professional testimony, but your testimony as a general observer may be demanded. Thus, if a woman be tried for the death of a bastard child, she may call on you to prove that the child was born dead; but the public prosecutor, when the evidence warrants the court to find, that had the child been born alive it would have been a bastard, may, on the other hand, call upon you to prove whether she endeavoured to conceal the birth of the child. In such a case, although your first evidence is direct, namely, that referring to the birth of the child, whether it came into the world alive or dead, yet on the adverse side your evidence can only be presumptive; and here you will feel the necessity of the remarks which I make respecting this kind of evidence, when delivered by medical men.

After a prisoner has been convicted of felony in this court, circumstances may occur to call upon you to give evidence in support of a plea to avoid punishment; namely, pregnancy or insanity, or circumstances connected with rape or murder; upon which part of your medico-legal duty I shall afterwards have to enter in detail. At present it is only requisite to mention the fact.

Such is the general nature of the Court of King's Bench. Your attendance is required by means of a judicial writ, called a subpœna, so named from the penalty of £100 imposed in case of disobedience. In general witnesses are not entitled to remuneration for loss of time, although, in some instances, attornies and medical men have their expenses allowed.

The next court which I have to notice is the High Court of Chancery. It is in matters of civil property by much the most important of any of the king's superior and original courts of justice. It has its name of chancery, *cancellaria*, from the judge who presides here, the lord chancellor, or *cancellarius*, who, Sir EDWARD COKE tells us, is so termed a *cancellando*, from cancelling the king's letters patent when granted contrary to law, which is the highest point of his jurisdiction. But the office and name of chancellor (however derived) was certainly known to the courts of the Roman emperors, where it originally seems to have signified a chief scribe or secretary, who was afterwards invested with several judicial powers, and a general superintendency over the rest of the officers of the prince. From the Roman empire it passed to the Roman church, ever emulous of imperial state; and hence every bishop has to this day his chancellor, the principal judge of his consistory. And when the modern kingdoms of Europe were established upon the ruins of the empire, almost every state preserved its chancellor, with different jurisdictions and dignities, according to their different constitutions.

In former times the chancellor was an ecclesiastic, for then all learning and education was vested in the clergy. He thence became the keeper of the king's conscience, visitor in right of the king of all hospitals and colleges of the king's foundation, and patron of the king's livings under the value of twenty marks per annum, in the king's books. He was thus a person of very great importance and responsibility; and, as the great seal is entrusted into his custody, he takes precedence of every temporal lord, and is a privy councillor by virtue of his office. He is the general guardian of all infants, idiots, and lunatics, and has the general superintendance of all charitable uses in the kingdom. And all this, over and above the vast and extensive jurisdiction which he exercises in his judicial capacity in the Court of Chancery, wherein, as in the Exchequer, there are two distinct tribunals, the one *ordinary*, being a court of common law, the other *extraordinary*, being a court of equity.

The legal court is the most ancient, but you are not likely to be called into this court. The extraordinary court is one of the greatest judicial consequence. It is one before which medical men are frequently called; and on the nature of the investigations there, we shall have frequent opportunity of touching as we proceed.

From the Court of Chancery appeals may be made to the House of Peers. The business in the Court of Chancery is done by examination of witnesses, and taking their depositions in writing, according to the manner of the *civil law*; and for that purpose interrogatories are framed, or questions in

writing, which, and which only, are to be proposed to, and asked of, the witnesses in the cause. These interrogatories must be short and pertinent, not leading ones (as, "did you see this, or did you hear that?"), for if they be such, the depositions taken thereon will be suppressed, and not suffered to be read. For the purpose of examining witnesses in or near London, there is an examiner's office appointed; but, for such as live in the country, a commission to examine witnesses is usually granted to four commissioners, two named on each side, or any two or three of them, to take the depositions there.

These commissioners are sworn to take the examinations truly, and without partiality, and not to divulge them till published in the Court of Chancery; and their clerks are also sworn to secrecy. The witnesses are *compellable*, by process of subpœna, as in the courts of common law, to appear and submit to examination. And when their depositions are taken, they are transmitted to the court with the same care that the answer of a defendant is sent.

In this, as in other courts, witnesses wilfully neglecting to attend upon the subpœna are guilty of a contempt of court; and, besides being liable to an attachment, and to damages at common law, in an action on the case by the party injured, he is liable to be fined to an amount, which is left to the discretion of the court, out of which the process shall issue. It is scarcely necessary to say, that as the Court of Chancery is the highest in the kingdom, the fine will be proportionally great.

In my second lecture, Gentlemen, you will find the following remark:—"In civil actions, however, the affirmation of a Quaker is admissible." Now, I have since discovered that, by an Act of Parliament of the 3rd and 4th of WILLIAM IV., cap. 49, passed August, 1833, the affirmation of a Quaker, or a Moravian, is admissible in *all cases*. The clause of the Act runs thus:—"That every person of the persuasion of the people called Quakers, and every Moravian, be permitted to make his or her solemn affirmation, or declaration, instead of taking an oath, in all places and for all purposes whatsoever where an oath is or shall be required either by the common law or by any Act of Parliament already made or hereafter to be made."

LECTURES
ON
MATERIA MEDICA AND THERAPEUTICS,
NOW IN COURSE OF DELIVERY
AT THE
WINDMILL-STREET SCHOOL OF MEDICINE.
BY
GEORGE G. SIGMOND, M.D.

LECTURE III.

Adulteration of Medicinal Roots.—Roots in General.—The Process of Vegetation.—Solar Light and Heat.—Leaves; their Medicinal Qualities; their Pharmaceutic Management.—Bark, Wood, and Flowers of Plants.—The Fecundation of Plants.—Unfortunate Adultery.—The Aroma, Fruit, and Seeds of Plants.

NOT only are the roots which are indigenous to this country gathered and prepared for medicinal purposes, but by the aid of our commercial intercourse with all parts of the globe, the forests of the most distant lands become subservient to our wants. The roots are, some of them, collected with the most scrupulous attention, and are imported with the greatest carefulness, and with proper management. Some of them are prized in their native soil, others, again, are considered worthless; thus the root and wood of sassafras are often thrown into vessels as ballast; the krameria, or rhatany root, is not much esteemed. Nothing, however, is more uncertain than the value of drugs; the market may be glutted by a particular article, or it may be scarce, so that the price is quite relative to the circumstances that may render it either the one or the other. I shall have occasion to point out the peculiar characteristics of each root, and to show you how to distinguish the fine specimens from the inferior.

It is not, however, whilst the roots are in the state in which they are found in commerce, that the medical man has much to fear from their adulteration or their impurities, for the characters by which they are known are very strongly marked, and it does not require a very distinct scrutiny to know one from the other, under ordinary circumstances; but it is when they have undergone the process of pulverization that they require more narrowly to be examined, as frauds of all kinds are practised, by which the uninitiated are liable to be deceived. There are mills to which roots are sent for the purpose of being reduced to powder, where they are exposed to adulteration. Of course the great mercantile druggists would not, for the paltry profit which results from the adulteration of drugs, be

guilty of the fraudulent practices which are daily carried on, and many houses would be naturally indignant, even if the slightest suspicion could be entertained of their lending themselves for a moment to any nefarious dealing. But it is a fact, that jalap, when ground, is often adulterated with the mandrake root, and with briony. Sometimes the refuse of rhubarb has been converted into a powder of a higher colour, and even, it is said, a higher flavour, than the purest, one pound of English rhubarb to two pounds of the Russian being added, and some other additions made. The ipecacuana occasionally undergoes this sort of shameful process in pulverizing, and the following formula has been given to make an article which is sold under its name:—

Ipecacuana, pure, lb. ij.
Guiacum, lb. j.
Tartarised antimony, ℥ i.

This can be sold at nearly half the price of pure ipecacuana. Ginger root undergoes a similar process by the nefarious trader:—

Ginger, lb. ij.
Bean flower, lb. i.
Capsicum, q. s.

Similar deceptions I shall have occasion to point out to you.

The esculent roots, under the head of "dietetics," will form a very interesting portion of our subject: first must be ranked the solanum tuberosum, or potato, which must be classed, from its importance to nations as a necessary of life, next to the cerealia, or corn plants. The brassica rapa, or turnip, occupies a very important place in British husbandry. The daucus carota, or carrot, the leaves of which were as much prized in the days of Queen ELIZABETH as an elegant head-dress as the root now is as an article of food. The parsnip, the favourite vegetable of Catholic countries, the use of which with salt fish is a remnant of the "auld lang syne." Besides these indigenous roots, we must refer to the cassava, or jatropha manihot, the salep, or orchis mascula, the maranta arundinacea, or Indian arrow root, the yam, or dioscorea sativa; all subjects of much interest, and as articles of commerce they become of importance to the countries in which they abound. Roots are either annual, biennial, or perennial. Annuals are such as are developed, fructify, and die away during the year; biennials are such as require two years for their perfect development, the first year they generally give forth leaves, the second they die, after having fructified; the lasting roots are such as belong generally to ligneous, or herbaceous plants, and subsist for several years, but climate, culture, temperature, situation, will alter the period of existence. Some plants that are annual under ordinary circumstances will, when exposed to a greater temperature, become biennial; others, again, in their native soil are perennial, but when they are transported to this climate die annually.

Having considered the root as the means by which the plant is attached to the soil, from which its extreme points absorb nutrition, we must examine the further process which is pursued in vegetation.

The series of phenomena which vegetable life presents is of the most interesting nature; at every step we are struck with its beauty, with its order, and with the delicacy of each arrangement. The efforts that have been made by us to discover the wonderful operations of the great Artificer of all have been worthy the reason with which man is endowed; and, although he has not been able to ascertain all the steps and gradations of vegetable life, he has succeeded in acquiring a vast portion of information relative to the nutrition, the functions, and the re-production of plants.

However magnificent and luxuriant may be the foliage of a tree, it is from the spongioles, at the tips of the root fibres, that nutriment is taken up. The extremities of a root are a prodigious heap of spongy fibres, around which are bubbles of air; whether it be by minute tubes, or by oozing among the tubes, that the fluids are carried into the main root, is not yet sufficiently understood. Before the leaves appear, in the early spring, the roots seem to be principally active in absorbing the soluble matter from the earth; then it is that the earth is neither too loose and perous, nor too stiff and hardened; and that it is sufficiently fertile in consequence of the decay of the fallen leaves at the preceding autumn. The fluid, at first imbibed, is nothing but water loaded with earthy matter; it takes the name of sap; this gradually ascends into the stem, almost colourless and transparent, but by ingenious experiments of watering the plant with coloured fluids, colour may be imparted to it; and the fact of the ascent of the sap is thus demonstrated. The sap, in its crude state, has been analyzed; but from the difficulty of obtaining it pure, and without the presence of the juices, proper to the plant, its real composition is not fully understood. VAUQUELIN has examined the sap of the elm, the beech, and the birch; Dr. PROUT the sap of the vine; Professor SCHERER the sap of the common maple; and Mr. ADDAMS the sap of the rose tree.

Generally speaking, it is believed, that until the sap has reached the leaves, that it consists of little else than water, gum, sugar, and traces of saline matter. From the experiments of Dr. HALES, detailed in the *Vegetable Statics*, we learn that the sap ascends with very considerable force, exceeding the circulation of the blood in the horse. He found the force capable of balancing a column of mercury thirty-eight inches high; and even when it had proceeded to the distance of forty-four feet from the

root, he still found the sap to balance a column of thirty-one feet of water. The fluid is conveyed to the very summit of the plant, and from the experiments detailed by Mr. KNIGHT, in the *Philosophical Transactions*, we find that it passes entirely through the wood, chiefly through the alburnum, and that none of it is to be found in the bark or pith.

The causes of the ascent of the sap have been inquired into without any satisfactory result. The impulsive energy of the heart in animal life has been allowed to be sufficient to account for the circulation of the blood; but as no organ endowed with a propelling function exists in vegetable life, botanists have sought to account, in various ways, for this action: some have ascribed it to mechanical principles; GREW attributed it to the levity of the sap; MALPIGHI to the irritability of the vessels and the dilation of the air contained in the vesicles of plants; MIRBEL supposes suction to be the cause; HALES referred it to capillary attraction; SAUSSURE to the contraction of the vessels. Nothing, however, that we as yet know will sufficiently explain to us this rise of the sap. We are precisely at the same point, as Dr. THOMAS THOMSON has observed, that we were in human anatomy, when the discovery of the circulation of the blood by the immortal HARVEY first astonished civilized Europe, although he was preceded, in some measure, by SERVETUS and VESALIUS, he has been, by universal consent, recognized as the observer to whose intellectual superiority we are indebted, and as the founder of a philosophy which we have every reason to believe correct, and upon which our knowledge of the operations of nature in man is founded. We at this moment require a series of experiments and inductions founded upon them to explain to us one of the hidden mysteries of vegetable life of the deepest value and importance to science.

The sap invariably tends towards the leaves, where it is destined to undergo changes which wisdom the most profound, art the most wonderful, could neither imitate nor improve, and which the more we become acquainted with the great economy of nature, the more are we led to believe necessary for the happiness and welfare of created beings. The state of the sap spread over the lamina of the leaf, is somewhat analogous to the state of the blood in the lungs of animals, and is apparently there for a similar purpose, namely, that of being exposed to the action of atmospheric air, and of giving forth a matter noxious to it, and inhaling a fluid; the leaves, then, are organs whose function it is to exhale a large proportion of watery fluid, absorb carbonic and decompose it, retain the carbon, and a portion of the oxygen, giving forth some part of it; and also emit a quantity of nitrogen; and these functions are called into action by the stimulus of light. It appears that in the leaves the sap undergoes an extraordinary change,—it is converted into a pulp, to be distributed over the plant for its increase, for its full development, and for the purpose of yielding the secretions proper to the plant. It is supposed that about two-thirds of the watery fluid that had been absorbed by the roots are exhaled by the leaves, and that there remains in them, therefore, about one-third, which is a much more inspissated fluid, and is denser than it was before. It was PRIESTLEY who first observed that carbonic acid was absorbed and oxygen given forth. HENRY, PERCIVAL, and INGENHOUZ have since, by experiment, confirmed the fact. The stimulus of light is necessary for these changes, for, in the dark, leaves take in oxygen from the air, and part with a portion of the carbonic acid gas contained in the sap; from the experiment of BONNET, too, it seems that the leaves of plants absorb moisture during the night; this, in trees, is performed by the under surface of the leaves, whilst transpiration is confined to the upper.

It is most probable that the intensity of light has the greatest influence upon vegetable perfection, and that upon that "Eternal co-eternal beam," upon "holy light, offspring of heaven first-born," much of the variation we observe in the vegetation of plants, and the constitution of their principles depends. It seems to be the source of that luxuriance which is observable in warmer climates, and to produce effects much more important than soil, atmospheric air, or any of the stimuli upon which vegetable existence depends. RENNIE states, that in American forests, when the young spring-leaves appear, they sometimes continue pale yellow for several weeks, from the baziness of the sky; but no sooner does the haze clear away, and the sun shine out, than the green deepens almost visibly. It is owing to this intensity of light, that in tropical climates leaves are so much larger, and that the secretions which are obtained from plants, and their medicinal qualities, are so much more strongly developed; hence, too, we fail in this country, from our absence of sufficient light, to grow plants to which every attention as to soil, heat, and moisture have been paid.

In a letter which Sir JOHN HERSCHELL wrote last year to Mr. HUDSON, the late secretary of the Royal Society, he states that he has invented an instrument to which he has given, from the Greek words *akte* and *metro*, the name of Actinometer, or measurer of sun-beams, by which he is enabled to obtain a direct measure of the intensity of the sun's rays. He says, speaking of the Cape of Good Hope, "The following may give you some notion of the purity of our sky, and the force of our sunshine. Effect observed here the day before yesterday, 48° 75 s.; usual effect of good sunshine in Eng-

land, 25° 30 s." Thus we see the intensity of light at the Cape is nearly double that which in our "murky isle" we enjoy. Still, the vivid greenness of our grass is much more pleasing to the eye than is the darker green of Italy and of the South of Europe.

The course of the vegetable fluid, which we have traced to the leaves, is further carried on. We have seen that it was absorbed by the roots, conveyed through the wood to the upper surface of the leaf, where imbibition and exhalation produced some extraordinary changes in it, somewhat analogous to the effects produced in the lungs upon the blood in animals. The colour, consistence, and properties of the fluid are now changed, a vegetable blood is produced, which is collected by a vein on the under surface of the leaf, it passes through the footstalk, to be dispersed upwards to the bud and downward to the root. Leaves, which perform this extraordinary function, are composed of the same vessels as are the root, the stem, and other parts of the vegetable, but their arrangement is very different. Leaves are a temporary part of a plant, for although some trees retain their leaves for two or three years, and in warm climates six years, and are called evergreens, still there is a partial fall of the leaf, in proportion of one-half or one-third at a time, so that the branches always wear a verdant appearance. They are commonly membranaceous, sometimes they are succulent, they are generally thin and flat; not always so, however, as the aloe shows, they are, for the most, green, though to this are also exceptions. The figure or the expansion of the leaf has served as an excellent guide in botanical researches, and its varieties have been carefully noted down, upwards of a hundred are enumerated. The medicinal and dietetic principles reside sometimes entirely in the leaves only; they must be exposed to a sufficient quantity of light for the full development of their powers; their colour is in many instances the only test we have of their activity. Digitalis, or fox glove, conium, or hemlock, the belladonna, all are deteriorated if they lose their green hue, and their narcotic odour is also dependent upon the same agency. Richard's classification is, into emollient, tonic, stimulating, narcotic, and purgative leaves; in the emollients he places althœa officinalis, malva rotundifolia; in the tonic, menyanthes, veronica; in the stimulating, mentha piperita, salvia officinalis, &c.; in the narcotic, conium maculatum, datura stramonium, nicotiana tabacum, atropa belladonna, digitalis purpurea; in the purgative, cassia senna acutifolia, et obovata, gratiola officinalis, coluctea arborescens.

The general rules given by our authorities for gathering and drying leaves, are, simply—"Leaves are to be gathered after the flowers have expanded, and before the seeds are matured," and "vegetables soon after they are gathered, except those which are to be used in the recent state, are to be lightly spread out, and dried as quickly as possible, with a heat so gentle that their colour will not be altered, and then preserved in proper situations or vessels where the light and moisture has been excluded." Generally speaking, the leaves ought to be gathered on a dry and sunny day, as soon as the dew is off; the less they are handled and thrown about the better. The process of drying is ordinarily conducted in a dark room, the leaves are carefully laid on osier baskets, and they are frequently turned over; the temperature should be about 130° of Fahrenheit. Some leaves require much greater nicety in their management than others—a drop of water upon a leaf of digitalis renders it brown and inert, aconite and belladonna become easily shrivelled, conium or hemlock loses all its subtile aroma, if it is not removed at a proper time from the drying-room, and put into closely covered jars; if the heat is too great the beautiful vivid green is lost; there is of course a practical knowledge which experience alone can give of every pharmaceutical manipulation, and, however trifling it may appear, it is of great importance where these operations are carried on upon a large scale. Leaves should not be gathered too late in the season, for the pulp is conveyed through the petiole, or foot-stalk, which becomes ligneous during the summer, and the sap finds greater difficulty in reaching the leaf. The fall of the leaf in the autumn has occupied the attention of physiologists, and various hypotheses have been advanced, such as cold, the insufficiency of transpiration, and the consequent accumulation of sap, which produces a fissure at the basis.

The bark and the wood of plants next demand some share of our attention, both physiologically and medicinally. The layers that form the general covering to which the name "bark" is given, seem not only to be requisite for the defence of the internal organization of the plant, but also as the laboratory in which the secretions of the vegetable are brought to their perfect state, and become endowed with the qualities peculiar to the species, for, as we have had occasion to observe, the ascending sap is confined to the wood and to the alburnum. The descending pulp, however, passes back through the leaf-stalk into the bark, and this Mr. Knight has satisfactorily traced. "He found that if the leaves be stript from the upper part of a branch, the bark will wither as far as it is stript; and if a ring of the bark be cut out above and below a leaf, the wood in the part above the leaf does not grow." The outer layers of bark are generally coarse and loose in their texture; they gradually, as they are further removed from the exter-

nal circumference, become finer, smoother, and more flexible. The inner bark, or liber, is excessively fine in some plants, and it obtained the appellation, liber, from the circumstance of its having been employed by the ancients to write on, before paper was invented. SLOANE, in his history of Jamaica, says, that the liber of the Daphne Lagello is not inferior in the delicacy of its net-work to the finest lace, and that, so flexible is it, that the natives employ the lace of the liber as a neckcloth; and the inner layers of the lime-tree, when separated by maceration from the outer bark, forms the common matting used by gardeners. It has been said, that the chief seat of vegetable life is in the liber. If the cortical layers be wounded or destroyed, a restorative process is set up; but if the wound penetrate beyond the liber, it does not occur. Some of the most valuable medicines that the vegetable world produces are obtained from the bark of trees, of which the greater number that have a place in the Materia Medica are endowed with a febrifuge power, and give a tone and strength to the system when debilitated. The most of them abound with an extractive matter, with tannin, with gallic acid, with their own peculiar alkaloid, upon which their virtues depend. The most important of those in our pharmacopœia are,—

Canella alba,	Cusparia,
Cascarilla,	Quercus,
Cinchona,	Salix,
Cinnamomum,	Ulmus.

Some trees are cultivated for the purpose of being stripped of their bark at the proper period; others, again, are peeled where they grow, in their native wild luxuriance. Where they are cultivated, the lower leaves and their germs are cut off wherever there seems to be a probability of a young branch becoming developed. In consequence of this, the tree rises up straight, tall, and thin, and unencumbered with lower branches. With regard to the different processes pursued, we have had at no time any accurate description of them. The peelers of the cinchona seem, from HUMBOLDT'S account, to be guided by a good deal of practical knowledge; but we have not yet ascertained whether they pursue any system, or whether it is merely the result of accidental circumstances. This, however, is a subject we shall hereafter have to revert to. Between the bark and the pith the layers which constitute the wood are placed; they are distinguished into two sorts,—the concentric and divergent layers. The concentric layers are visible on making a horizontal section; they are not always strictly concentric, nor are they always equal in density. The outermost layer has obtained the name of alburnum; it is considered to be wood in a less dense and perfect state, and is softer and paler than the innermost layers, which have been called the duramen, or heart-wood. The divergent layers are also discoverable on a horizontal section; they intersect the concentric layers in a transverse direction. They have been denominated the medullary rays, from the idea that they have their origin from the pith. They form a large proportion of the wood; they are commonly called the silver rays. The woods that find a place in our pharmacopœia are few in number. The guiacum and the quassia are the most important; the hæmatoxylon and the pterocarpus are rarely medicinally used. Dr. MARTIUS, in the Pharmakognosie, gives us a catalogue of fourteen woods, and sixty-four various barks, which he considers to possess medical efficacy, or which have been admitted into one or other of the great European Pharmacopœias. Some of them are scarcely known in this country, and others have been occasionally employed, but have not received the sanction of practitioners generally.

In directing your attention to the flowers of plants, I am aware that I can only interest you from their importance in the vegetable economy, and that, as therapeutic agents, they claim from you but little consideration; for the most part it is only from the aroma that they exhale, that they can be classed as component parts of the Materia Medica. The flower consists of the calyx, the corolla, the stamen, and the pistil: the leafy part of the flower performs the office of imbibition and of exhalation, in the same manner as do the leaves. The important constituents of the flower are those which are subservient to the reproduction of the plant, namely, the stamen and the pistil. The stamen has, at its extremity, cells, extremely thin, but vascular and membranous, which contain a fine powder, denominated the pollen. This, at the proper period, is put into contact with the pistil, or female organ; and there is a time at which the pistil arrives at puberty, when its stigma, or absorbing channel, is covered with moisture, and is capable of conveying to the germen this pollen, or fructifying principle. When the male organ is almost in contact with the female, the impregnation is easily accounted for; but this is not always the case, and then nature seems to have made arrangements by which she can keep up the great end and aim of all her works,—the preservation of each species. The extraordinary steps which she takes for this purpose have excited the attention of philosophers from a very early period; and the feeble means by which she attains her mighty ends, seem to demand from us our deepest attention and our constant admiration. At one time her views are effected by some almost insignificant insect; at another time, by the circumambient air; at another, by an instinct in vegetable life, which astonishes our minds. Various species of bees, and of flying insects, have been observed by SPRENGEL to complete the impregnation

of plants; they do not seek the sweet juice of the nectary for that purpose, but they become instruments of nature, and carry with them the pollen of the stamen on their hairy bodies to the stigma of plants; and those flowers, which secrete a sweet juice, are for the most part liable to these visitors. Thus the honey of the flower often attracts the insect, who becomes the innocent cause of fertilising some unimpregnated pistil. Some insects are provided with a long and pliant proboscis, the anatomy of which has been fully displayed by the extraordinary light which has been concentrated by the oxy-hydrogen microscope, which promises to be of such deep importance in minute researches, both in the vegetable and animal kingdom. Probably the sphinx convolvuli, or unicorn moth, exhibits the most extraordinary organization of these insect "lovers of the sweets of life." It appears that he is the possessor of a proboscis, or trunk, that has more muscular movement than the elephant's; he carries it carefully rolled up under his chin, and when it is necessary can extend it about three inches. This little insect enjoys good health, at least DARWIN points out that his progenitors were remarkable for their fat and healthy appearance, for he is alluded to in the Botanic Garden, and his state is ascribed by that philosopher to his possessing such admirable means of stealing his neighbours' goods. Certain it is, that the botanists of the present day do not detract from his reputation, and look upon him, not only as a nocturnal robber, but as very probably an efficient agent in vegetable life. It is observed, that when the flowers close up, he sallies forth to rob the honeyed stores, and in the darkness of the evening, from the beauty of his colours, he escapes the hungry rapacity of the late sleeping birds, who mistake him for the flowers he is rifling. Sometimes the pollen, or farina of plants, is carried by the air to a neighbouring plant, which it impregnates: of this a very curious and instructive example is detailed by RAY.

There was at Brentford a gardener, Mr. BAAL, who had always maintained a fair and respectable character as a gardener. He cultivated a remarkably fine cabbage, which excited the attention of his neighbours, and he sold a large quantity of the seeds to several gardeners who lived in the immediate neighbourhood of London. They planted them in the usual manner, but at the period of development, instead of the root they had seen grow up in BAAL's gardens, they found that the brassica longifolia uniformly made its appearance, not the florida, as they had expected. The gardeners, fancying an imposition had been practised upon them, determined, in a body, to prosecute poor BAAL: the trial came on at Westminster-Hall, the unfortunate man was unable to prove his innocence; neither the barristers, nor the witnesses, nor the judges, knew any thing of the Linnæan system. The poor gardener was found guilty of fraud. He was condemned not only to restore the price given for the seeds, but was likewise obliged to pay each gardener for the loss of time, and for the ground that had been uselessly occupied. His character and circumstances were consequently ruined, which impaired his health, and he sank under his accumulated afflictions, and died. Had any one been acquainted with what we now know, or had the poor man, BAAL, learnt, from observation, the use of the pollen in rendering the pistil productive, he would not have been found guilty of a crime, and the true cause would have been explained, namely, the fortuitous impregnation of the brassica florida, by the farina of the brassica longifolia growing in its neighbourhood. That this was likely to occur, and to prove that constancy is not a virtue belonging to the vegetable kingdom, I must quote the words of DARWIN, the great enquirer into the Linnæan system. He says, "I was this morning surprized to observe, amongst Sir BROOKE BOOTHSBY's valuable collection of plants at Ashbourn, the manifest adultery of several females of the plant collisoniana, who had bent themselves into contact with the males of other flowers of the same plant in their vicinity, neglectful of their own."

Under any circumstance, however, the fecundation of plants may be considered to be fully understood, and probably there is no branch of the vegetable economy that has been more completely investigated, and which deserves from those, who are studying the different processes that are carried on in nature, more unequivocal testimonials of consent, and of that feeling which inductions, following upon full and fair observation and experiment, will always call forth. The delicious fragrant aroma of flowers, which the art of man fails to collect, or imitate, has been also the subject of much enquiry, and seems likely to remain, both as to the cause and effect, a problem that future naturalists must solve.

When plants have ceased to flower there issues from the germen the fruit. This is either a naked seed, or it is invested with a skin, with a shell, or with a fleshy coat. Thus there are two great divisions of plants, such as have naked seeds, gymnospermia, and such as have their seeds covered, angiospermia. The covering is called a pericarp, and in this is contained the rudiments of a plant similar to its parent, which, under proper circumstances, is fully developed, and acquires the principles of life. For the preservation of this seed nature has exerted her utmost ingenuity; some are enclosed in hard nuts, as the seed of the oak; others in a fleshy, or succulent coat, as the plum, the peach, the apricot; others in a coriaceous, or spongy substance, as the almond, or wal-

nut; others are wrapped in down, as the rose; others are suspended in a large air-vessel, as the pea. The dissemination of these seeds is another wonderful provision; the capsules of some, such as the castor oil, burst with an elastic force, and throw the seeds far from the parent plant. Birds swallow some seeds, and prepare them for germination, such as the hawthorn, or juniper. Some seeds have a feathery substance attached to them, by which they are borne on the air. Seeds and the fruit are a most interesting source of valuable aid in the healing art.

LECTURES

ON THE

PHYSIOLOGY OF THE NERVOUS SYSTEM,

DELIVERED IN 1836, IN THE COLLEGE OF FRANCE.

By M. MAGENDIE.

Lecture IV.

Error in the Denomination of the "Great Sympathetic."—The Study of Physiological Anatomy.—The Protection of the Brain and Spinal Marrow.—Arrangement of the Blood-vessels of the Cerebro-spinal Axis.—The Parietes of the Cerebro-spinal Cavity.—The Cephalo-rachidian Fluid.

Gentlemen:—In the last lecture we examined a few points connected with the anatomy of the cerebro-spinal axis, and directed your attention to a principal fact,—the connection which exists between this centre of the nervous system and the different organs of our body, by means of nervous prolongations from the mass to each organ, whence all our functions are subjected to the influence of the nervous centres. Let us now turn to another part, which has excited the attention of physiologists in a peculiar manner for the last few years. If you examine the sides of the vertebral column, near the junction of the ribs with the bodies of the vertebræ, you will observe a range of small, irregularly-shaped, greyish masses, connected to each other by fine filaments, and also communicating with the respective nerves which issue from the spinal marrow between the bodies of the vertebræ. This range of masses, or, as they are called by anatomists, *ganglia*, constitutes the system of the sympathetic nerve, a denomination that we might admit as just, if we were to admit the futile hypotheses of authors on the connection existing between it and our different functions; but you shall presently see, by actual experiment, that it is far from meriting the epithet of *great sympathetic nerve*, for whatever may be the functions of this apparatus, they at least seem to be of a minor importance. It is formed by a mass of ganglia, which you may lacerate, or even exterminate, to a considerable extent, without producing any results which could justify the gratuitous denomination of sympathetic, which this system has received. Some physiologists go so far even as to say, that each ganglion of the great sympathetic nerve is a species of brain in miniature; others, amongst whom we may range Gall, regard them as so many sources whence the nerves which pass to the neighbouring parts may derive their energy. These are nothing but gratuitous suppositions, which we shall not take the trouble of discussing, for you have only to announce them to show their absurdity.

But here a general consideration presents itself, which I think right to lay before you, in order to prevent my ideas from being altered or interpreted in a false manner. When a science is in its infancy, and before it has been enriched with a sufficient number of facts, hypotheses, however absurd they may be, have still a certain degree of utility, because they excite the understanding to verify the facts of which they are the expression; hence you may amuse yourselves with inventing theories, if you have leisure. I only engage you to submit them to the test of experiment. It is the peculiar duty of the physiologist to be acquainted with every fact of anatomy connected with the nervous system. However, as it is impossible, and, indeed, inconsistent with our purpose, to examine this branch of anatomy in any thing like a complete manner, we shall confine ourselves to pointing out the anatomical circumstances which throw light on the nature and mechanism of our functions, wherever we have occasion to examine the latter. In this point of view, we might denominate the science *physiological anatomy*.

In pursuing the anatomy of the nervous system, there is a certain method of examining the various organs of the body, which may lead to the most interesting results. Thus, when we study anatomically the structure and relations of the different parts composing the brain, we are sometimes enabled to arrive at physiological facts, connected in the most evident manner with anatomical dispositions. For example, it has latterly been demonstrated, that the section of such or such a portion of the nervous centres occasions important modifications in the sensibility or motility. If you examine anatomically the cerebral lobes, you will soon find them productive of physiological results. Thus, if you remove one of the anterior cerebral lobes in an animal, you find that the sense of sight immediately becomes more feeble. Remove them both, and vision is completely destroyed.

Before we can attempt to draw any conclusions of a physiological nature from expe-

riments made upon living animals, it is necessary to become acquainted with all the physical circumstances capable of influencing the functions of the cerebro-spinal apparatus. As the texture of the brain is extremely delicate, and its functions derange by the slightest physical modification of its parts, it was necessary to surround this pulpy and delicate mass with means of protection capable of rendering it inaccessible to external violence. Nature has provided for this in the most beautiful manner. Look at the *ensemble* of contrivances employed to protect the brain, and withdraw it from the influence of external agents. Thus, with respect to temperature, it is enveloped in a tissue well calculated to regulate the changes of heat and cold to which the head may be exposed, while the danger of external lesions is guarded against by the most ingenious combination of osseous and membranous envelopes. In short, the brain, as you all know, is protected by an external covering of skin, by a muscular layer, and a firm membrane, the periosteum,—by the osseous parietes of the cranium, and, finally, by the *dura mater*, a fibrous membrane, which offers very considerable resistance. All these "*tutamina cerebri*," while they serve each a particular purpose, contribute to the general end of protecting the central nervous mass from external injury. I should also direct your attention to the hair, by which the whole of the cranial integuments are covered in considerable quantity. These hairs not only serve to deaden the force of blows, &c., but also, being bad conductors of calorie, regulate the temperature of the head, and prevent too great a loss of animal heat, whose privation is sometimes attended with disturbance of the cerebral functions. The hair is arranged in such a manner as to form a kind of net-work, or fur, whose interstices intercept the globules of air, and are thus well disposed to keep the head in an equable temperature, and in some measure independent of the air or fluids which surround it. In addition to this, as the hair is impregnated with an oily material, it imbibes a very small quantity of moisture, and dries with the greatest facility. Hair is a very bad conductor of electricity, and hence the head is, as it were, placed in a kind of neutral state, and is withdrawn from the influence which an excess of electricity in the surrounding atmosphere might exercise.

Here we have enumerated a number of contrivances for protecting the brain from the action of external agents, but the most efficacious is the envelop formed by the osseous walls of the cranium. Observe the hardness of this solid case, its disposition in the form of a sphere, and reflect that any pressure or violence exercised on a given point of its circumference, is distributed from the injured point over the whole surface of the skull, and consequently prevented from being concentrated, to the injury of the contained organ. The consequence of this provident disposition of nature is, that if an individual receives a violent blow on the summit of the head, the force is decomposed as it were, and dispersed in all directions; while, on the contrary, it would inevitably break down the bone and destroy the brain, if it were not thus protected by the provident wisdom of nature. This is incontestibly proved by what are called indirect fractures, "counter fissures," a species of accident that never arrives except when the force of external violence is much greater than the means of resistence offered by the disposition just pointed out.

I ought to observe to you likewise, that the skull is capable of slightly changing its form, whenever it is pressed upon, or submitted to any other strong action. These slight modifications of form are not attended with any bad results, and are rendered innocent by the great softness of the cerebral mass; hence the inconveniences that might arise from too considerable a change of form, diminish in proportion as the brain is more and more soft, a fact proved by what passes in children, whose heads may be deformed in a very remarkable degree (as we see in some savage tribes) without the general health of the infant suffering.

Thus you perceive an admirable assemblage of means which nature employs for the safeguard of one of her most exquisite productions. Let us extend our enquiry in this point of view to the spinal marrow. Here, if we were to estimate the importance of an organ by the extreme care and precaution employed for its construction, and compare the cranial nervous mass, in this respect, with the contents of the vertebral canal, we should be inclined to place the spinal marrow in a much higher rank than either the brain or cerebellum; we know, however, that the office of the brain is of a much more varied, extensive, and important nature than that of the spinal marrow, and hence we must attribute the extreme care which nature has taken to protect this portion of the nervous system from external violence, to the extreme delicacy and tenderness of its structure. In fact, you see that its functions are deranged by the least concussion, while it was impossible to employ the same means for decomposing force that we found in the conformation of the cranium, such a disposition being altogether incompatible with the form of the human body.

The vertebral canal forms the principal apparatus of protection for the spinal marrow, and in this point of view it presents us with a construction of the most perfect kind. Examine the disposition of the vertebræ, the manner in which they are united together by a reciprocal accommodation of solid parts and powerful ligaments,

disposed in every direction that could ensure strength; the muscles by which the solid parts are enveloped and brought into action,—examine, I say, all this, and you will see how admirably the construction of this part of the body is arranged for allowing free play to the functions of the spinal marrow, while at the same time it withdraws the nervous mass from the action of all external bodies that might be injurious. Solidity is here most judiciously united with the degree of mobility necessary for the motions of the human body, and you will find, when you come to practice surgery, that actual lesions of the spinal marrow from external violence are very rare accidents indeed.

Another point in the anatomy of the cerebro-spinal axis worthy of fixing your attention is, the disposition of its vessels; as the quantity of blood with which the brain and its dependencies are supplied, is very considerable, it becomes necessary to guard against the disturbances, or even the mortal accidents, which would inevitably supervene in any very sudden rush of blood in too great quantity to the nervous centres, which, as you have seen, are organized in so delicate a manner as to yield to very slight force. Nature has not neglected to provide for this with her usual foresight. The beautiful disposition of the carotid arteries in certain mammalia, forming a kind of net-work (*rete mirabile*,) at the base of the brain, is known to all comparative anatomists; in man we do not find this provision; but the carotid arteries before they subdivide to enter the brain, are arranged in a flexuous manner, and, moreover, pass through a bony inextensible canal of some length, in consequence of which the impulse of the circulating fluid is more or less diminished. Besides, the blood arrives at the substance of the brain only after having having passed through the fine capillary tubes distributed throughout the pia mater, whence it passes to the nervous substance, as it were, drop by drop. We shall presently examine whether the blood is propelled through its vessels by the force of the parietes, or whether it is not rather circulated by the direct impulse of the heart. What concerns us more immediately is to point out, that whatever be the quantity of blood sent to the brain, it is maintained in very near the same proportions,—a condition evidently necessary for the healthy exercise of its functions. This is easily seen from the effects produced by introducing any quantity of a foreign substance, such as gases, liquids, &c., through the circulation to the brain. An experiment of this kind is almost instantaneously followed by some remarkable trouble of innervation, not only because the nature of the blood has been more or less altered, but because the quantity of the circulating fluid has undergone a modification incompatible with the healthy exercise of the functions of the brain. As to the vertebræ, and the venous sinuses of the spinal canal, we find the organisation changing with the changing exigencies of the case; here the parietes of the venous canals are excessively thin; the internal lining membrane is very fine; the external or cellular sheath is also weak, and the parietes of the veins do not present the same powers of resistance which we find in the more superficial vessels, the saphena vein for example. The phenomena connected with this portion of the nervous centres are opposed to what we observe in the brain; the sinuses of the vertebral veins are capable of being distended by the influx of blood; those of the brain, enclosed either in osseous grooves, or in a firm resisting membrane, do not yield to pressure from within; the veins of the spinal canal, then, may become engorged, and even distended to a degree which is accompanied with danger, under the influence of certain muscular efforts, violent cries, long-continued expirations, &c. In some cases the phenomenon just mentioned is carried to such a point as to produce laceration of the parietes of the vessel, followed by paralysis, or even sometimes death. In fact, it is to an accident of this kind that we should attribute most of the cases of sudden death which arrive during the act of coition, of defecation, &c. It is, however, clear that the danger would be infinitely augmented, if the veins and sinuses of the brain were subject to a similar degree of distention.

There are various other dispositions to which I might draw your attention, but the one of most importance and the most interesting to the physiologist, is certainly the relation existing between the cerebro-spinal axis and the parietes of the cavities in which it is contained; and here I must again recur to the precepts laid down in one of my former lectures. Study anatomy, Gentlemen; examine profoundly the structure and disposition of the human body, not for a few months, or seasons, as is ordinarily done in the schools, but pursue your researches for years together, and in such a manner as is best calculated to illustrate the phenomena that daily pass before our eyes. I confess the study of anatomy is sometimes tedious and uninteresting to the individual who takes it up principally with a view of illustrating physiology, for there is a great number of anatomical facts which seem in no way connected with physiology or the laws of life; however, when you discover a disposition of parts which explains or is connected with a vital function, your knowledge of anatomy not only gives you new and more extended views on the nature of that function, but also graves it in a solid manner on the mind. [Here the professor unravelled a large plate, representing the

spinal marrow, and drawn by M. Cloquet. He first drew attention to the dimensions, and then criticised pretty severely the execution of the plate in an anatomical point of view; the spinal marrow, in fact, was represented as filling completely the cavity of the vertebral canal.] This, said M. Magendie, is an evident error. The nervous substance is surrounded on all sides with fatty matter, with cellular-tissue, and with a plexus of veins: all these must occupy more or less space. The dura mater is closely applied against the parietes of the vertebral canal; this is a fact of which you may at once convince yourselves. Hence it is plain that the intervals between the dura mater and the substance of the chord must be filled up with something or other. Now, this interval occupies at least from four to five lines near the occipital foramen, and three or four at the level of the dorsal region. The medulla oblongata is evidently far from filling up completely the orifice of the foramen magnum; without having recourse to actual observation you might conjecture this *à priori*, for if it were not the case, the slightest movement of the neck might determine a fatal degree of compression, but when we come to examine the spinal marrow, more closely and *in situ*, we find it every where too small to occupy exactly the cavity of the vertebral canal.

We may now ask, What is the reason of this particular disposition? What phenomena take place in this interval between the substance of the nervous mass and the walls of its cavity? It is certain, as I said before, that the membranes which envelop the spinal marrow derive their dimensions from the size of the canal, and not from that of the nervous axis. What, then, is the reason of this apparent anomaly? Why does this interval exist? Or why, when we examine the dura mater in the dead body, does it appear relaxed, flaccid, and applied on the surface of the spinal marrow?

Gentlemen, these different questions are resolved by a physical fact, whose existence no physiologist before our time had suspected, and which we were fortunate to discover a few years ago. During life, the space apparently existing between the cerebro-spinal axis and its membranes, is occupied by a fluid, which I have named cerebro-spinal or cephalo-rachidian; and I had proposed to commence to-day a set of experiments connected with this fluid. I may, however, so far anticipate myself as to say, that the fluid we speak of is transparent, and issues more or less abundantly, according to the point in which we open the membranes. In the normal state its quantity varies from one to two, or even three ounces. It resists atmospheric pressure, and is always found on examination of the body after death. This latter assertion may seem hazardous, but it is true, provided you take proper precautions to prevent the escape of the fluid. During life it prevents the spinal marrow from being compressed, and enables it to resist, with advantage, external pressure. In the dead body the quantity of fluid found is always much less than that existing during life, for it passes off by evaporation, or is imbibed by the neighbouring tissues. We have already drawn your attention to the fact, that the veins which surround the spinal marrow, from their texture and position, are susceptible of becoming tumid, or engorged, on different occasions; but as they meet resistance, which they cannot overcome, on the side of the osseous parietes, the development must take place at the expense of the cavity of the spinal canal itself. The consequence resulting from this engorgement of the veins is, that as the movement of the blood acts on the fluid contained in the vertebral canal, we have a constant flux and reflux of liquid from the cranium to the cavity of the spine, and from this latter back to the skull. This phenomenon is purely mechanical. If you place a tube on the spinal marrow you prevent the ascension of the fluid to the brain, and the nervous action is at once deranged,—it may even be annihilated.

In what I have thus far said, I wished to lay before you a few of the physiological dispositions of the spinal canal and cranium; of the sinuses of the brain and vertebræ; of the flux and reflux of the blood in the veins of these latter bodies; and am thus led to the study of the cephalo-rhadician fluid, which we shall pursue in our next lecture.

CASE OF

STRANGULATED FEMORAL HERNIA,

ATTENDED BY PECULIAR CIRCUMSTANCES, AND FOLLOWED BY

ARTIFICIAL ANUS,

SUCCESSFULLY TREATED.

To the Editor of The Lancet.

Sir:—The readiness with which you inserted some remarks of mine, on the treatment of the malignant cholera, induces me to offer to the notice of your readers the notes of a case of femoral hernia, which contains many points, not only of an anomalous nature, but others of a really practical character; otherwise the frequency of cases of hernia, as well as the circumstance that the principles of treatment are well understood and practised, would not allow me to occupy the pages of your journal by any which only slightly varied from those which are ordinarily met with. Another reason which urges me to adopt this course is, the very improbable chance of meeting with another in my own practice presenting similar fea-

tures. Moreover, under other circumstances, a series of cases would be demanded in order to establish a principle for which I shall hereafter contend. I may add, that I have the pleasure to have for a colleague a gentleman whose reputation will stamp with authority the case now recorded, and lessen the necessity of recording other cases to convince those who might be sceptical on the points detailed, and prove to demonstration that nature, assisted by art, can accomplish wonders in overcoming the effects of disease.

CASE.—The subject of the present case is the widow of a colonel in the army, æt. 56, who has been subjected, during her life, to many vicissitudes of climate, having lived in India for many years, and followed the regiment wherever ordered. Her constitution in consequence was considerably impaired, and the functions of the liver, together with the other abdominal and pelvic viscera, were much deranged, and for their improvement she had been under my care during about six months, with very considerable benefit. Throughout this period she had never communicated to me (through extreme delicacy) the fact of her being the subject of hernia, though closely questioned in every respect. From this affection she had suffered for five years, produced by her foot passing over a stone, and making a false step. Having friends staying with her, and feeling better than she had done for years, she was disposed to live more freely than I had permitted her to do for some time, and neglected for a day or two the state of her bowels, which at best were generally sluggish. In this state, influenced by the fineness of the day, and the beauty of a park in which she was walking, she was induced to run a distance of 30 or 40 yards, when she was suddenly seized with a violent pain in the tumour, which she found had become double its usual size. She regarded this but little, as, upon resting, the pain subsided, and she afterwards ate a hearty dinner, and drank a glass of wine. At about 11 o'clock on the night of the 16th June, she was seized with violent pain in the abdomen, with constant vomiting. On my seeing her she simply related to me her departure from the rules I had laid down for her guidance, and that she had allowed her bowels to be constipated for several days. The tongue was very foul; the pulse 80, and soft. I acted for her relief. At three, A.M., I was again called, the symptoms still continuing severe. I administered a large dose of opium, and ordered enemas to be persevered in every hour, until copious evacuations were obtained. This treatment had the effect desired, and on my visit at eight A.M. on the 17th, I found that the vomiting and pain had entirely ceased; copious fæcal stools had followed each injection; the pulse was soft and feeble; and the patient expressed herself as being quite well and comfortable; she had made water freely.

Two, P.M. Not being satisfied that the bowels were sufficiently emptied, I directed purgative medicines to be administered by the mouth, and they were retained.

Nine, P.M. Uneasiness of the bowels was felt, as if from the operation of the medicine; a disposition to sickness manifested itself on placing the hand on the abdomen; neither pain nor tension in the slightest degree was felt; the pulse continued soft and free. Pushing my enquiries still further, the patient now very reluctantly informed me of the presence of a tumour, which I found to be of about the size of an egg, soft, without pain, and elastic, lying in the course of the inguinal canal, presenting at first sight the appearance of a bubonocele; however, on tracing the tumour, I found it be a femoral hernia. I made immediate attempts at reduction. She would not allow me to bleed her, not considering the hernia to be the cause of the symptoms, which were not at this time of the most urgent kind; but reviewing her general state of health, the sudden increase of the tumour, and the condition in which I found her on my first summons, no doubt was left as to my course.

I accordingly requested the attendance of Mr. C. Tripe, of Devonport. At half-past ten, P.M., I bled her to faintness, and in this state, which was most complete, we tried, during one hour, to reduce the hernia, without making the slightest impression on it. We now determined to give her an opiate, apply cold to the tumour, watch the symptoms, and act accordingly.

June 18. A subsidence of every uncomfortable feeling. The tumour had not diminished; no tension of the abdomen, nor sickness, but the integuments were rather sore, from the attempts at reduction; the tongue was loaded, but moist; pulse 80. Ordered cold to be kept applied, and enemas to be administered; these were always followed by a slight faculent discharge. We thought it prudent not to administer anything by the mouth, except slight nourishment, lest we should disguise the symptoms. Towards evening she again began to feel uncomfortable, the pulse quickened, and a disposition to sickness was felt.

19. Passed a restless night, otherwise the symptoms, generally, were not aggravated, with the exception of occasional sickness. Neither tension of the abdomen, hiccough, nor any of the more violent symptoms indicative of a strangulated hernia, were present. In the course of the morning the vomiting increased, the tumour was more painful, and the pulse accelerated. A consultation took place, in which Mr. C. Tripe and Dr. Isbell took part, and it was decided, notwithstanding the absence of the more violent symptoms, that an operation was

necessary, should no improvement take place.

At five, P.M., two hours from the time at which we last saw her, stercoraceous matter was thrown up in abundance, and anxiety was manifested by the patient for the first time. Three days had now elapsed since I was first called in, and up to this time no other symptoms than those detailed had presented themselves. I immediately proceeded to perform the operation in the usual manner.

On exposing the sac it presented a dark-mahogany colour, distended with fluid, and not, as is usually the case, closely applied to the surface of the bowel. On laying it open it was found to contain a tea-cupful of fluid, and a large knuckle of intestine, so completely embraced by the stricture, that it was with some little difficulty that the director was insinuated between them. Gimbernat's ligament was then readily divided, and the hernia, which was of the same colour as the sac, and had contracted no adhesions, was instantly returned into the cavity of the abdomen. Relief immediately followed, the wound was dressed, and the patient put to bed, grateful for our perseverance in the course we had adopted. Ordered her an opiate.

20. Passed a quiet night; vomiting entirely ceased; made water freely; the pulse 90, soft and full; a copious, ill-conditioned discharge issuing from the wound, portions of the sac having already commenced sloughing. Seven, P.M. Quite free from pain, not a bad symptom present.

21. Slept soundly; the bowels have been moved by a small dose of castor oil. The wound discharging freely; tongue still foul.

From this time to the 28th she continued improving, the discharge becoming less offensive, and the wound granulating kindly; the bowels open daily; when, instead of taking her usual diet of bread and milk, arrow-root, &c., which I had insisted upon, she took a bason of rich soup, which she ate with avidity, and within two hours violent pain and vomiting came on, accompanied by immense distension of the abdomen. I ordered an opiate immediately, and enemas to be administered. These means were followed by great relief.

27. Passed a restless night; the pain in a great measure relieved; frequent, ill-conditioned discharges from the bowels; pulse frequent and small. Ordered her small doses of blue pill, with acetate of morphia, and a blister to be applied to the surface of the abdomen. Eight, P.M. Much better; the discharges from the bowels of a better colour; the pulse soft and full; made water freely, and the tongue much cleaner; no other symptom present except the debility attendant on such an attack; the wound discharging freely.

28. Slept soundly; while going to stool she fancied that she heard a sound issuing from the wound, and, on examining, found that a discharge of fæces had passed through it. On passing down the finger I could detect the bowel pushing itself against the sides of the ring, and, introducing a probe, it readily entered the opening. I could only anticipate the usual termination to such an accident, viz., the formation of an artificial anus. I filled the wound with lint, and ordered her to live upon the most simple diet, such as arrow-root, and avoiding much fluid.

29. The fæces escaping in great quantity, Mr. Tripe again saw her, when it was determined to stimulate the wound with lunar caustic, fill it with lint, and establish a daily discharge per anum, by means of a dinner pill. This, by degrees, succeeded; the discharge gradually lessened, and granulations sprang up from the bottom of the wound. At the end of two months from the time of the accident, the wound had perfectly closed, and she is now enjoying better health than she has done for years, and takes daily exercise, and the only inconvenience which she feels is the dislike she has to walk, arising from a sensation of weakness in the part.

Remarks.—There are three points in this case,—independently of the most interesting, namely, the lesion of the intestine,—deserving attention, and very instructive.

1st. The insidious progress of the symptoms, with the exception of those of the first six hours, and these might have arisen from a disordered and constipated condition of the bowels, as, up to the last moment, when stercoraceous matter was liberally thrown up from the stomach, none of the marked symptoms of strangulated femoral hernia were present, namely, hiccough, or a tympanitic state of the intestines, &c.

2nd. It is generally observed, that the sac is in close contact with the surface of the bowel, whereas, in this instance, it was considerably distended with fluid, and of a dark-mahogany colour, and the circulation was so much impeded, that it soon sloughed. Thus, no doubt, the case would have proceeded to a fatal termination, without the symptoms being more urgent than at the time of operating.

3rd. A week had elapsed before the accident occurred, and throughout that time the regular and daily action of the bowels had been established, and the wound was filling up with granulations, all combining to prove that no lesion of the intestine could have taken place by means of the knife, but was the result of rapid ulceration on an already diseased portion of the bowel.

Sufficient evidence may be gathered from this case to satisfy the mind of any man that nature can make most extraordinary efforts in repairing lesions of the intestine, when

arising from disease, clearly holding out the hope of our being able to accomplish much in accidents of this nature, if we but carefully follow her footsteps. Thus the bowel was found closely applied to the sides of the ring, and sought support from its edges.

Since writing the above, I have noticed, in the *Medical Gazette*, the particulars of a case of extensive rupture, where, from the condition of the bowel and the omentum, a portion was amputated; the wound successfully closed, and the patient was enabled to follow his usual occupation. Thus, another case proves, beyond dispute, the success that may attend the course adopted in the present instance.

It would be occupying too much space in your valuable journal to offer any speculative opinions as to the chances of closing the artificial anus after it is completely formed, by means of granulations; but the fact of a wound of the intestine being closed over by such means, is sufficient to require every medical man to do his utmost in averting so disgusting a termination to a case, which is too frequent. I do not apprehend that the canal through which the fæces pass is other than that occasioned by the presence of foreign matter acting upon the surrounding tissues until accustomed to the contact; and though, in many instances, the wound in the intestine may be closely approximated to the external opening, still I consider that it can rarely, if ever, be a point of intestine thrust forward, and simply protected by the external tegument. If this be not the arrangement which follows, then the surface can be destroyed, granulations encouraged, and the wound closed over, as in the case now detailed. I am quite aware that many propositions are abroad with the view of closing the artificial anus, but as my object is rather the announcement of certain facts, tending to prove its prevention in the first instance, I shall content myself by leaving it to the consideration of the profession, instead of occupying your columns by uselessly contending for points which time and opportunity alone can establish.

I am, Sir, your obedient servant,

ISAIAH BURROWS,

Surgeon to the Devonport and Stonehouse Public Dispensary.

Stonehouse, Oct. 15, 1836.

THE ARTEMISIA ABSINTHIUM.—Dr. ELLIOTSON has employed this medicine in various cases of hysteria since those mentioned some short time since in THE LANCET. Its general success has warranted the continuance of its use. The cases are unnecessary to be detailed; they differ in no particular from those already stated. In one case in which the artemesia failed the carbonate of iron was effective.

WESTMINSTER MEDICAL SOCIETY.

Dr. ADDISON, President.

Saturday, October 15, 1836.

The Society commenced its meetings for the new session this evening at the Hunterian Museum. The room has been lately much improved. It is now lighted with gas, seats have been erected in front of the chair, and a patent stove introduced. Some remarks were first made respecting the production of papers and the failure of the Society's meetings in May last, so few members attending. Mr. QUAIN thought the most instructive evenings were those in which descriptions of cases took place; for when papers were read, however good as essays, they took up the whole evening, and did not admit of discussion until the following week. He did not regret, therefore, that no papers were yet promised.

TRACHEOTOMY.—POISONING BY SULPHURIC ACID.

Mr. QUAIN then related the following case:—A child, æt. two and a half years, was brought to the *North London Hospital*, having swallowed some sulphuric acid, the exact strength of which could not be ascertained. He found extreme difficulty of breathing, threatening suffocation. He immediately commenced tracheotomy, but whilst performing it the child ceased to breathe; the lips became livid; in fact, it was *in articulo mortis*. He, however, proceeded with the operation; very slight hæmorrhage occurred, but he had to tie one vein. A tube was introduced, and air directed into the lungs from the mouth of the surgeon, no other apparatus being at hand. In half a minute the large arteries began to beat, the face brightened, and the artificial respiration being kept up for some time, two other persons assisting, the child revived, and lived for three days, but then died from bronchitis, the inflammation having spread downwards from the glottis. On examination, the depth of the incision to the trachea was found very great, from the quantity of fat covering the lower part of the neck; the veins were pretty numerous. On opening the trachea from behind, puriform fluid was found effused into it. The orifice of the glottis was very small, and there was great thickening about the epiglottis. None of the acid had reached the œsophagus. Did the Members think that the efficacy of air directed into the lungs would be increased, if its temperature were slightly raised? He did not think the child had suffered from the absence of apparatus.

Dr. JOHNSON thought, that if apparatus were ready it would be better, but on emergencies breath from the lungs should be immediately employed. Regarding poison-

ing, it was remarkable what a protecting sensibility parts possessed for rejecting acrid substances. In this case none of the poison had gone into the œsophagus, and he believed none into the trachea. Tracheotomy was not fully appreciated. A gentleman whom he attended 24 years ago, Mr. Price, of Portsea, though *in articulo mortis*, from intense laringitis, recovered by tracheotomy, and still lives, breathing through a tube, but he has not spoken since. He removes the tube occasionally to clean it, sometimes keeping it out for two or three hours, the orifice retaining its character until the tube is returned. He suffers little inconvenience from the foreign body, all the parts seeming to have got perfectly used to it. Regarding poisoning by sulphuric acid, a curious case was related in the "Transactions of the London Medical Society" in which two ounces, in its concentrated state, were swallowed. After some severe symptoms the patient rallied, and apparently recovered; but a few days afterwards, during a severe fit of coughing, he brought up a quantity of the acid in its pure state, which produced a fatal inflammation about the trachea, the acid having been a fortnight in the stomach. After death, it was ascertained that this acid had been surrounded by a cyst formed by secretions from the stomach, which burst during the coughing.

Mr. URE said that some experiments which he had lately performed seemed to corroborate this case. Sulphuric, nitric, and other acids being dropped into albumen, a cyst formed around the globules of acid, and kept them pure for a long period.

Mr. COSTELLO had seen three patients who lived by the same means as Mr. Price. In one, a very delicate woman, tracheotomy relieved a gradual extinction of the voice, supposed to arise from a gradual decrease of size in the natural passage for the air. While using the tube, unsuccessful attempts were made to enlarge the natural opening. The operation was performed three years since. Her voice is particularly unpleasant to hear; she cannot articulate without one finger being placed on the end of the tube, but he had seen a patient who could speak without this manœuvre, owing, perhaps, to more air passing through the trachea than in the other case.

Mr. QUAIN had seen a man in Paris, who had cut his throat, who breathed for two years through a tube. The glottis was obstructed by a septum, and nothing would pass into the trachea from the mouth. After a time he required a longer instrument, a small tubercle having been caused by the irritation of the tube on the anterior of the trachea. He thought that in such cases as he had first related, the tube should be removed in a few hours, for when inflammation existed at the upper part of the trachea, a foreign body might cause the inflammation to descend. In his case the child was without the tube for the last twenty-four hours of its life. Regarding the speaking, he had noticed that his little patient had exceeding difficulty of breathing when it spoke, which probably arose from a greater effort of the breath to pass through the natural passage, being enough to produce speech, for on taking out the tube in these attacks, it was found clogged up, and impervious.

Dr. A. T. THOMPSON said, that the temperature of the resuscitating air was of no importance, its effect on the lungs not being chemical, but mechanical. He had never seen any disadvantage from breath being employed. Regarding tracheotomy, it might be asked, whether it would not be useful in some cases in which suffocation was not threatened,—such, for instance, as in laryngeal phthisis, where ulceration had proceeded to a great extent, in which hectic was brought on, and the patient was sinking, though his lungs might be apparently sound? The mischief, in such cases, probably arose chiefly from irritation caused by the air passing over the ulcerated surfaces. Tracheotomy performed low down might remove this irritation, and perhaps save the patient.

Dr. JOHNSON had frequently thrown out this suggestion in the *Medico-Chirurgical Review*. He considered, that if disease was ascertained to be confined to the larynx, many lives would be saved by tracheotomy, if the tube were allowed to remain in, and the ulcerations in the larynx were allowed to heal by quiescence, assisted by counter-irritation. Even if there was a doubt respecting the soundness of the lungs, the patient should have the benefit of it; or even if there were some signs of disease in them, the chance should be given. The operation produced little pain, and without it the patient would die from the other disease.

Mr. H. THOMPSON considered there might be such cases, but would private patients submit to such an operation? If they did, their friends would say that the operation had killed them. He had generally found in such cases that the lungs were diseased.

Dr. A. T. THOMSON said, that many people would act so, but if the case was plainly stated, more would consent.

Dr. JOHNSON thought the plan should be tried in the hospitals, and if successful there, it would soon find its way into private practice.

Saturday, October 22, 1836.

DISEASES SIMULATING AFFECTIONS OF THE BLADDER.—ALBUMINOUS URINE.

Mr. H. JOHNSON related the case of a young gentleman who had lately been under his care, who appeared at first to suffer from what is usually denominated "a rick in the

back," all the usual symptoms of that affection being present. The patient had to void his urine every half-hour during the night, and every hour and a half during the day, in small quantities, varying from two to four or six ounces at once. There was pain in the bladder, and at the end of the penis before micturition, and a burning pain there afterwards. The symptoms so far resembled calculus, but the urine never stopped suddenly. The urine was very slightly albuminous sometimes; and after "settling," a deposit of a peculiar white substance was found in the vessel. No stone could be detected on sounding, no enlargement of the prostrate, and the urine contained no pus or mucus. Under these circumstances, disease of the kidney was suspected. The general health was bad; he had a phthisical appearance, was emaciated and weak, and his fæces were tinged with blood. Medicines only slightly relieved him, and one day he died very suddenly. The kidneys were healthy; the bladder appeared so, too, at first, but on close observation a small aperture was detected at its apex, on its anterior side, which admitted the end of a probe. This aperture communicated with the cellular membrane, between the peritoneum and the muscles of the abdomen, and, through this means, with the cœcum, which was so extremely ulcerated that the appendix vermiformis could not be distinguished. He (Mr. J.) considered that the disease had commenced in the cœcum, and then gone on to the cellular membrane, and afterwards to the bladder. He had concluded this to be a disease of the kidney, because he remembered a case in which the symptoms were very similar, but with more albumen in his urine. No stone was present. No medicines availed, the symptoms increased, the urine contained pus, and the patient died, when a very large quantity of pus was found in the right cavity of the chest, and an ulcerated aperture of the diaphragm on the same side, communicating with the kidney; hence the pus found in the urine was accounted for. There was no disease of the bladder.

Mr. COSTELLO considered Mr. Johnson's *rationale* of the progress of the first case just. The case afforded a good instance of the power of serous membranes to conduct out of the body any thing injurious to it.

Mr. PETTIGREW, jun., had met with a case of a woman who had great difficulty in passing urine, which was voided in small quantities. There was a tumour in the lumbar region, accompanied with pain, which extended down the thigh. It was concluded by himself and another gentleman, who was consulted, that the patient suffered from lumbar abscess. In a week afterwards, pus was found in the urine, and the woman died with hectic. On removing the intestines, a large tumour was detected in the lumbar region, and on endeavouring to remove it, it burst, and a very large quantity of fœtid matter escaped. The kidney itself had suppurated. There was no disease of the bladder.

Mr. HALE THOMPSON had seen a case in the *Westminster Hospital* of a singular kind. A patient had been sent to be operated on for lithotrity by Baron Heurteloup, who, on sounding the bladder, found it so irritable that he feared that disease of the kidney was present. He could not satisfactorily detect a calculus. Mr. Thompson afterwards sounded the patient, and could not make up his mind that a stone was in the bladder. A sensation was given, by the sounding, of a peculiar character, but not exactly that of a calculus, though somewhat similar,—a peculiar grating noise, and the parietes of the bladder appeared to be thickened. There was nothing peculiar in the urine. The man became hectic, and died without any decided symptoms. Not a vestige of disease was found in the bladder, which was exceedingly contracted, having scarcely ever had any urine in it, from its irritable state. The right ureter was nearly obliterated. There was extensive disorganisation of the kidney, which contained no matter, but was affected with a species of melanosis. The irritation of the bladder depended on this state of the kidney.

A long and desultory discussion followed respecting the presence of albumen in the urine as a symptom of renal disease, in which Mr. GREENWOOD said, he believed there might be albumen in the urine to a great extent, depending on mere functional disorder; and many cases like those related by Mr. Johnson, with sympathy between the kidney and bladder, were recorded.

Mr. JOHNSON considered that where albumen was present in the urine, conjoined with other symptoms, it was just to consider that disease of the kidney was present, but that albumen might be present without such disease, and *vice versâ*.

The officers for the new session were appointed this evening. Dr. JOHNSON having been president during a former session, resigned his claim to Dr. C. J. WILLIAMS, who was accordingly elected president, and Mr. COSTELLO vice-president. Ten members were also elected on the committee.

During the discussion, a warm altercation arose between Mr. H. JOHNSON and Mr. GREENWOOD, respecting a debate which took place in the Society two years before, Mr. Greenwood now contending that he had referred to cases similar to those mentioned by Mr. Johnson, and that these were now again brought forward as new by Mr. J. As the display of feeling became strong, the President stopped it.

LONDON MEDICAL SOCIETY.

Monday Oct. 24, 1836.

Dr. WHITING, President.

SPECTRAL ILLUSIONS.—DELIRIUM TREMENS.

Dr. J. JOHNSON related the case of a gentleman, 34 years of age, a member of a learned profession, of a nervo-sanguineous temperament, and of very studious habits, a free-liver, drinking his bottle, or more, a day, but who, nevertheless, did not think that he was intemperate; who, in walking along the streets about three weeks since, stumbled, and fell with his head against a wall. He was stunned for a few moments, but was able in a short time to walk home. He did not seem to be much affected by the accident, but he lost a little blood by cupping, abandoned wine, took aperients, and lived low, by way of precaution. In a few days he became sleepless and nervous, and in the evening had spectral illusions, figures seeming to glide into the room, when he was awake, sometimes friends, sometimes strangers, gradually increasing in number. They conversed, acted various parts, and much amused him. Some would congregate, and argue a case with amazing eloquence. One night the party took a witty turn, and amused themselves with puns, some of which he noted on paper. It was clear that he was not dreaming, for he would ask his wife if she saw them, and he repeated their conversations to her. If the shutters were opened they disappeared. Almost immediately after the scenes just mentioned, the figures changed their actions, and began to exhibit every bad propensity, gradually increasing in atrocity until they appeared very devils. Dr. JOHNSON now saw the patient; he had a white tongue, a quick pulse, red eyes, hot head, and tremulous hands, and seemed to be labouring under modified delirium tremens. Leeches and cold were applied to the head, and he was ordered to re-commence his wine, begining with two glasses, and gradually increasing it, in four or five days, to a pint daily, when the illusions were nearly gone. He (Dr. J.) did not see the patient after this, and concluded he was well. A case was related in the *Edinburgh Medical Journal*, of an old gentleman who was affected with spectral illusions for twelve or fourteen years. He died upwards of ninety years of age. In that case the brain was found disorganized in various parts, the judgment had not appeared at all to suffer. He was a great linguist.

Mr. G. JONES considered that where the person was conscious of the nature of these illusions, and they were not unpleasant, the brain was not disorganized until the illusions had been kept up a long time.

Mr. KINGDON knew an old gentleman who had these illusions for several years before his death, which took place at 84 years of age. He was temperate, and considered generally very healthy. These illusions were so pleasant that he would do nothing to remove them. Indeed, he called them his "delights." The figures assumed various forms, but never spoke. If he attempted to seize them they vanished. Their appearance was made at bed-time, on extinguishing his candle. So long as he kept quiet, the figures were present, generally with merry actions; on speaking or moving they vanished. He died fatuitous, having caught cold which produced fever. He (Mr. K.) considered, that at the commencement of these illusions some change in the brain had begun.

Mr. DENDY said these cases were not uncommon. The most important on record probably was that of Nicolai, the Prussian bookseller, who experienced illusions for years after dinner, daily. Opium eaters were affected like Dr. Johnson's patient, having at first most pleasant visions, and afterwards horrible ones. Was the predisposition to them the consequence of great mental application? He believed that savages seldom dreamt, or had spectral illusions. These cases threw light on phrenology, though he was not altogether a phrenologist himself. Some of them seemed entirely to depend on mental impressions, such as those illusions which were revived by associations of objects. No disorganization existed in those cases.*

Dr. T. THOMSON had seen a case of illusion, somewhat similar to that mentioned by Dr. Johnson, in scarlatina.

Mr. MERYON considered that such cases arose from great mental application, and that the effects were removed by stimulants.

Dr. J. JOHNSON could not unravel their pathology. The pathology of delirium tremens was exceedingly mysterious—he remembered a gentleman, aged about 31, who died with delirium tremens well marked, stimulants and opium having been employed, in whom, on examination, though it was expected from the symptoms that a very diseased brain would be found, the patient having been furiously delirious, Sir A. Cooper and himself discovered a brain as hale as was ever seen. There was no effusion, but it appeared as if dried up. He (Dr. J.) considered, in the case he had first related, that the excitement of wine and long-continued thought had much share in the cause, the fall not much, except that

* Sir W. Scott, in his work on "Demonology," states that a young profligate was affected with illusive figures about three inches in height, dressed in pea-green. On retiring to the country to recruit his health the illusions left him, but returned on the furniture of his house in town being removed to his country residence. Other cases are recorded by Abercrombie, Macnish and Hibbert.—REP. L.

it caused the abstraction of blood and stimulants. There appeared to be a reverse state to that of inflammation; but extremes often met; and great discrimination was necessary as to treatment. Of course the pulse afforded a great indication in this. You would not give stimulants with a full bounding pulse—in delirium tremens there was a sharp, thready, quick, irritable pulse.

Dr. WHITING recollected a case in which a lady experienced illusions from cerebral disease, which was treated by large doses of mercury. The illusions were sometimes disgusting, sometimes beautiful. She recovered, but became blind.

Dr. LEONARD STEWART remembered a dyspeptic lady, aged 60, who drank two or three glasses of strong brandy and water daily. Becoming rather poorly at a time of great mental excitement, she was thrown into a "nervous fever," and afterwards became subject to spectral illusions of children. Her usual stimulant and good diet did not restore her, but small blood-lettings, of six ounces, twice the first day, and twice a week for six weeks afterwards, nourishing food, and no brandy and water, rendered her so much better that she had not since suffered one illusion.

Mr. BRYANT had lately seen numerous cases of fever in the poor, who would get stimulants if possible, in whom there was evident congestion, with low delirium, when first brought into the sick ward. With a small quantity of their usual stimulus, the tongue got cleaner, the pulse better, and they generally improved.

Mr. CLIFTON knew a blind old lady, who spoke many languages, being subjected to these illusions for years, but they were only excited after taking coffee. Her health was good.

The Society then adjourned.

Previous to the discussion Dr. UWINS requested to know if he was at liberty to mention cases which had come under his observation, without reference to any doctrine. He was induced to ask this question from the manner in which some cases were received at the last meeting of the Society; he did not consider the members had treated him well on that occasion. He was commenting further on the previous discussion, when he was stopped by the PRESIDENT, who begged, if any cases were to be related, that Dr. Uwins would at once proceed with them. Dr. JOHNSON said, that if hahnemannism was again introduced, he should leave the Society, whereupon Dr. UWINS with some warmth said, "Then I shall leave the Society," and accordingly walked out.

[Our report of the discussion on homœopathy, on the 24th instant, we have not room for this week, again. It shall appear in the next LANCET.]

THE LANCET.

London, Saturday, October 29, 1836.

THE City of London is notorious for its medley of corrupt and contemptible chartered companies; but of all the disgraceful bodies of this description, there is not one which, for rottenness and insolence, for uselessness, and, at the same time, vaunting pretensions, can for a moment stand a comparison with the incorporated drug-dealers of Rhubarb Hall. The audacious UPSTARTS who control the educational department of that disreputable concern, literally had their small wit driven out of their shallow brains by the powers which they derived from the enactment of the legislature in 1815. So utterly besotted are they in conceit, so anxious are they to exercise their authority, so thoroughly proud of their functions, that they shrink not from committing any species of folly rather than refrain from a single act which is calculated to annoy the medical students of this metropolis, or render those young gentlemen the objects of insult, even before their hired menials.

One of the stupid vagaries of this upstart, impertinent Company, is that of compelling pupils who design to be candidates for the licence, to apply at "the Hall," and register their names within a certain number of days from the period when they have commenced their attendance on lectures in the medical schools, and unless such "registrations" be made, the candidates are not admitted to an examination, but are spurned from the doors upon a mere matter of form.

Now these old beldames are fully apprised of the fact, that the "registration" of students does *not* afford the least protection for securing an *attendance* upon the lectures for which they have *registered*. They are aware that it offers no guarantee that the pupil will even remain in the

metropolis for one hour of the period which is specified in the registration; moreover, the Company have not sufficient cunning to conceal the fraud which they tolerate by admitting as "recognised" testimonials, documents which go to prove that a pupil is actively engaged in serving an apprenticeship in York, and is diligently occupied in attending lectures in London, at one and the same time, in the self-same month, in the self-same year.

For example: suppose a student who has been articled as an apprentice to an apothecary at Exeter, or York, and who up to the present month having served one-half of the five years required by the Act of Parliament, comes to London, pays his money for his "tickets" to some one of the "schools," applies at the Hall, and is then registered as a pupil in attendance on the classes to which he has entered. Now, one of two things may happen. Either the student may remain in London to attend the lectures, or, he may return to Exeter or York to comply with the terms of his indentures. It does not, however, follow that he *must* do one of these two things. After having registered he may start *on a tour of pleasure*, and see nothing either of the apothecary in the country or the lecturers in London, until he returns to the metropolis to receive *a six weeks' or two months' grinding*, previous to the 15th of April, 1839, when he would be entitled, according to the dates of his "certificates" and "registration," to be examined for his licence. On producing his "recognised" documents,—on referring to the "Register" at the Hall,—on offering his indentures for inspection there,—what is seen on the face of them? First, the documents signed by the lecturers, testifying that the candidate has been "diligently occupied" since the 1st Oct. 1836, in attending lectures and medical practice *in London* during the two years-and-a-half immediately preceding April, 1839,—and, secondly, the indentures which at the same time vouch for the fact, that the identical candidate has been occupied during the whole of the specified period, in learning the art and mystery of an apothecary, as an apprentice, with Mr. PHARMACOPOLIST, at *Exeter* or *York!* Or, it may be a fact, that the whole of the months, with the exception of about eight weeks, (which have been passed in keen, active, grinding,) between October, 1836, and April, 1839, may have been occupied in making a tour, or in the enjoyment of the sports of the field, or the stream of this country. Although there had been no attendance at the hospital, no attendance in the class-room, the old ladies at Rhubarb Hall know full well that the certificates from the "recognised" schools would be received, that the indentures would be accepted, and that the candidate, unless he exhibited the spirit of an independent young Englishman before his pettyfogging saucy examiners, would become a licentiate of the worshipful company. And *this* is the scheme which these conjuring witches have devised "for the *prevention of fraud!*"

The dates of the testimonials and indentures prove indisputably that the party producing those documents cannot, by possibility, have conformed with the stipulations which they contain, that he cannot possibly have resided both in Exeter and in London, during two years-and-a-half, at one and the same time; yet these virtuous sticklers for *their* "*system* of registration" and other fooleries,—these insolent pretenders to honesty,—admit the candidate to an examination, and filch out of him his money for a licence which does not qualify him, by law, to practise as an apothecary in England and Wales!

This question is one of deep importance; it merits the serious attention of the professional reader, and we earnestly admonish all medical students who intend to apply for their licences to examine the subject thoroughly, and fortify their conduct by a strict adherence to the spirit and the letter of the law. On several occasions, when it has been discovered that candidates for the licence have produced testimonials which had been improperly obtained,—such as false

certificates of age, and other deviations from the statute, and the by-laws of the Court of Examiners, — the offending parties have been proceeded against by indictment for their misdemeanours, their licences have proved to be worthless, and the culprits have been subjected to disgrace and imprisonment. In some of the cases, the offences involved merely a breach of the by-laws of the company. In other instances, the charges comprehended violations of the statute of 1815. In both descriptions of offences convictions were obtained when the allegations were fully substantiated by evidence before a jury. In order, however, to sustain the indictment when the allegation consisted of an offence against the by-laws laid down for the observance of students, a conviction could not be obtained unless the by-laws themselves were good in law; that is, were framed in conformity with the powers which the Court of Examiners could legally exercise,—a very just and wise provision; otherwise students would not enjoy a moment's security against the tyrannical disposition which that ignorant body of men has so repeatedly exhibited.

We do not complain, then, that students pay the penalties if they do not obey the law. Submission to the decrees of the legisture is one of the first duties of a good citizen. Violations, therefore, of the statutes of the realm, when they are proved, must necessarily, in order to sustain our institutions, be visited with sufficient punishment to deter others from committing the like offences. If, therefore, a student obtain his licence by means of false certificates, by violating the conditions of the Act of 1815,—in a word, by fraud,—he is liable to a prosecution for the misdemeanour,—he is not a legally-qualified apothecary, as his licence is invalid,—he could not practise as an apothecary without subjecting himself to an infliction of the penalties named in the Act,—and he could not recover, in a court of law, any sum of money for medicines and attendance for which he had charged, as an apothecary. The prosecutions and convictions which have been instituted and obtained by the Company against offenders in these respects, prove, most incontrovertibly, the accuracy of these statements.

But are medical students alone liable to punishment for violations of the law? Are the *candidates* for the licence of the Apothecaries' Company to be subjected to punishment for breaches of the law, and shall the members of the Court of Examiners be permitted to escape with impunity? Shall the candidate who has obtained his licence by improper certificates, or by the aid of some trifling informality, be punished by imprisonment for the misdemeanour,—be exposed for practising as an unqualified person, and be mulcted, in reality, of all the advantages which the licence would confer, —shall, we ask, an individual thus circumstanced be exposed to these dangers and severe visitations, and yet culprits of graver years, *whose very trade is fraud*, be permitted to escape without suffering pain, penalty, or exposure? Both law and reason answer peremptorily in the negative! Already has it been stated how severely the licentiates may be punished for obtaining their licences by means of falsely-testifying certificates,—by deviating, in fact, from the regulations which are issued by the Company. This, undoubtedly, is an offence, if those regulations be framed "according to law." But what are the Examiners themselves in the habit of doing? Why, in fact, they are guilty, systematically guilty, of violating the provisions of the 15th clause of the Act. Yes; we charge them with audaciously and knowingly BREAKING THE LAW, by admitting to an examination students whose testimonials furnish the proof that either the act of the legislature, or the regulations of the company, has been, or have been, violated in their persons. Will the Examiners assert, will they have the brazen impudence to allege, that they do not grant licences to candidates whose indentures of apprenticeship, and whose testimonials of attendance upon lectures prove incontrovertibly that the candidates have

been sometimes for one, and sometimes for two years, *differently occupied*, in *two places*, situated *scores of miles asunder?* Yes. Pupils, whose testimonials establish this astounding fact, are admitted as "qualified candidates for examination," and receive the licence. Yet the act of 1815 has decreed, that unless an apprenticeship of *five years* be *actually served* to *an apothecary*, the examiners shall *not* admit them to an examination; and if they be admitted, and receive the licence, that licence is *not worth a straw*, because the individual possessing it is, in the eye of the law, practising as an unqualified apothecary. But let us quote from the 15th clause,—every portion of it which relates to the apprenticeship,—and then it will be seen who are the law-breakers,—the students or the petty-fogging Court of Examiners.

Section xv *of the Act.*—"Provided always, and be it enacted, that no person "shall be *admitted* to any such examination "for a certificate (a licence) to practise as "an apothecary, unless he shall have *served* "an apprenticeship of not less than *five years* "to an apothecary."

These are the identical words of the Act. "*No* person shall be admitted to an *examination* unless he shall have *served* an apprenticeship of *not less than five years*, to an "apothecary." This is the development of the law upon the subject. When, therefore, the testimonials of the candidates prove that any portion of an apprenticeship which ought to be served under indentures, at a place distant from the metropolis, has been devoted to an attendance on lectures and hospital practice in London, or elsewhere, the Examiners expose themselves to the consequences of a prosecution—of an indictment—for a misdemeanour, by admitting such candidates to an examination. Yet this violation of the law is committed by the honest people at Rhubarb Hall on every day that the students are admitted to an examination, and licences are granted (under these circumstances) to candidates; and we are satisfied that there is not a lawyer in the kingdom, whose opinion on a breach of law is worth a pin, who will contend that an examination so informally and so illegally granted,—that a licence so informally and illegally obtained,—can confer upon its possessor a right to practise as an apothecary in any part of England or Wales. Of course it cannot be endured that the Examiners shall select whatever section of the Act they please as the rule for their conduct, and reject the remainder as unworthy of attention. It cannot be allowed that any body of men shall set themselves up above the legislature, and contravene the declaration in the Act of 1815, that candidates shall not be *admitted* to an examination unless they have served an apprenticeship to an apothecary. Unless *this servitude* have been made, as it is a condition precedent to the examination, and to the obtaining of the licence,—the non-compliance of the candidate with the stipulations of the law disqualifies him from practising as an apothecary, although he is in possession of the licence of the Company.

When, therefore, the Examiners prosecute students for occasional venial violations of the statute and their own by-laws, they might, we think, exercise some slight degree of forbearance, and, at any rate, in enforcing the registration at the commencement of the session, not employ their menial ruffians to assault a body of gentlemen who attend at the Hall to enter their names in obedience to the commands of the upstart Company. They might recollect, too, as an additional inducement to leniency, that they have themselves been such wholesale violators of the law, that thousands of men are now practising in England as apothecaries, by virtue of the licence of the Company, who, not having served an apprenticeship of five years, as is ordered by the 15th clause of the Act, are engaged in their professional duties illegally, are incapable of recovering for any charges they may make for medicines and attendance,—and are exposed, daily, to prosecutions as unqualified medical practitioners. Entrapped into the commission

of these offences, placed in this unfortunate position, by the beldames of Rhubarb Hall, who, while they affect to be influenced in their conduct by feelings of pure virtue and disinterestedness, are themselves literally steeped to the chin in fraud. When the medical committee of the House of Commons is re-appointed, we promise these unrelenting persecutors of the medical students, that the breaches of the law which they have committed, and the numberless licences which they have granted in nonconformity with the stipulations of the statute under which they exercise their functions, shall be thoroughly investigated, and fully exposed.

We learn, with feelings of surprise, that the lecturers of the School in Aldersgate-street consider that it was our object to impute to them the manufacture of the scandalous EADY-LIKE puff which was lately printed concerning that school in the columns of the "Medical Gazette." If it contained any imputation on the conductors of that school, it was one which had reference to ignorance, and not to infamy. But we had no intention to subject the lecturers, as a body, to the frightful accusation of writing in a journal, the secret and hired conductors of which had been guilty of the cowardly and assassin-like crime of replying to statements of facts and argument by infamous insinuations against the private and moral character of the writer to whom they were opposed. Mr. WALFORD has written to us, disclaiming all knowledge of the paper in the "Gazette" until he saw the article in print. The disclaimer of Mr. WALFORD was altogether unnecessary. We had not the remotest intention of connecting that gentleman, or his colleagues, with one exception, with the fabrication of the disreputable puff in the still more disreputable "Gazette." It certainly is no trifling offence, in the eyes of the profession, to be associated with the hirelings of a journal, in the pages of which general practitioners in medicine, —the fathers and brothers of medical students,—have for years been systematically abused, and the students themselves held up to ridicule, as "NOVICES, GREEN AND FRESH FROM THE COUNTRY."

THE ALDERSGATE HIRELING.

To the Editor of THE LANCET.

SIR:—One of Æsop's fables applies with admirable force to the gentlemen in Aldersgate-street. Indeed, a very trivial alteration will make the cases alike. If the teachers of that school choose to render the services of their editor-colleague useful to their establishment, they cannot complain of your dealing with them *à-la-husbandman*. It is not fair that because a publication happens to have a person connected with it who is a teacher as well, that the publication should be prostituted to the purposes of the school in which the lecturer has a share. I hope, Sir, you will not be deterred by the abuse of Dr. Cummin, from doing justice to this shameless puffery, so injurious to fair competition. I wonder Messrs. Longman can be so inattentive to the interests of their journal as to allow it to be sunk by this misapplication to the private interests of those who are not shareholders in the ricketty thing. Yours respectfully,

A MEDICAL STUDENT.

"THE HUSBANDMAN AND THE STORK.

"The husbandman pitched a net in his field to take the cranes and geese which came to feed upon the new-sown corn. He caught several, both of cranes and geese, and with them a stork, who pleaded hard for his life, and, among other apologies, alleged that he was neither goose nor crane, but a poor harmless stork, who performed his duty to his parents, to all intents and purposes, feeding them when they were old, and, as occasion required, carrying them from place to place upon his back. 'All this may be true,' replied the husbandman, 'but, as I have taken you in bad company, and in the same crime, you must expect to suffer the same punishment.'

"*Moral.*—If bad company had nothing else to make us shun it, this might be sufficient,—that it taints a man's reputation as much as if he were versed in the wickedness of the whole gang. What is it to the sufferer, if the thief who robs him gives part of the money to build a church? Is the latter less a thief? Shall a woman's going to prayers twice a-day save her reputation, if she be known as a lying gossip? Such mixtures of religion and sin convince us that the latter was not committed in ignorance; and when we so neglect our reputation as to keep bad company, however little criminal we may be in reality, we must expect the same censure and punishment as is earned by the most notorious of our companions."

LIGATURE OF THE CAROTID ARTERY FOR ANEURYSM OF THE ARTERIA INNOMINATA.

HAD space permitted us, either last week or in our Number of the previous Saturday, to advert to the subject, we should have appended a few remarks to the interesting case of aneurysm of the arteria innominata, successfully treated by placing a ligature on the carotid artery, recorded in this journal, at page 129, by Mr. FEARN, an able and highly scientific surgeon practising in Derby, whose communications have often added value to our work as a record of contributions to medical science. The operation on the present occasion was performed according to the principle originally proposed and adopted by Mr. WARDROP; but there seems to exist some misconception relative to the position which it occupies as a surgical proceeding. We therefore take this opportunity of rectifying the error. By the by, it is a circumstance worthy of note, that in every case in which this new operation has been performed, the surgeons who have successfully adopted the recommendations of Mr. WARDROP, have not been the jealous functionaries of our metropolitan hospitals, but medical practitioners residing in other and more enlightened quarters.

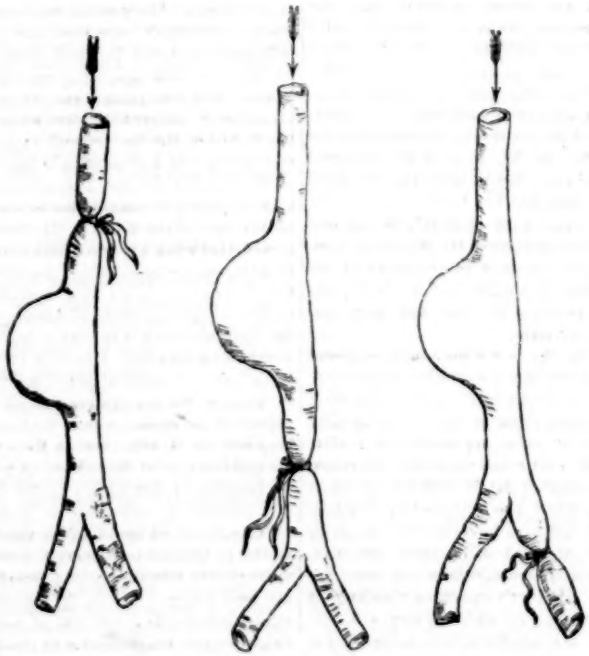
Admiring the talent and sound judgment of Mr. FEARN in the operation in question, we may point out that his principles were not altogether those which were originally explained as being applicable to similar cases. Mr. FEARN, and some other surgeons, have confounded Mr. WARDROP's operation with that which was proposed by BRASDOR. The three different operations for aneurysm are those of HUNTER, BRASDOR, and WARDROP, each essentially differing from one another. HUNTER's operation consisted in placing the ligature on the artery, at a considerable distance from, and on the *cardiac* side of, the tumor. BRASDOR proposed, in such cases of aneurysm of the extremities as were so situated that there was not room enough to apply a ligature on the cardiac side of the tumour, to place the ligature on the distal, or what is more technically called the "capillary," side of the aneurysm. Though that mode of operating had already been proposed nearly sixty years, it had been performed only three times throughout Europe, on all which occasions it proved unsuccessful, until twelv years ago, when it was revived, and successfully employed, by Mr. WARDROP, in several cases of aneurysm of the carotid, for which artery it is undoubtedly particularly applicable.

But the operation which Mr. WARDROP afterwards proposed was founded on a totally different principle, and perfectly distinct, from the operations both of HUNTER and BRASDOR. Mr. WARDROP was led to perform the new operation for the cure of aneurysm, by a chain of reasoning deduced from observations made on the results of HUNTER's operation, and also from the phenomena observed in the spontaneous cure of aneurysm. Many cases were recorded wherein HUNTER's operation was successfully performed, but in which it was afterwards found that the artery on which the ligature had been placed was not sufficient altogether to prevent the circulation of the blood within the aneurysmal tumour, the circumstance of a *diminution* in the velocity of the blood within the tumour being sufficient to permit its coagulation to take place for the cure of the disease. He further observed, that when aneurysm was cured by a spontaneous process, nature sometimes effected her purpose, not by a *complete* interruption of the circulation within the tumour, but by diminishing it to such a degree as to cause its coagulation. Hence he justly concluded, that in cases of aneurysm thus circumstanced, when a ligature could be placed neither on the *cardiac* side of the tumour, as proposed by HUNTER, nor on the artery on the *capillary* side of the tumour, as proposed by BRASDOR, a diminution in the force of the circulation, sufficient to permit the coagulation of the blood within the tumour, would be effected by placing a ligature on the capillary side *of only one branch* of the diseased artery. When, for instance, the arteria innominata is the seat of aneurysm, and when it is impracticable to place a ligature on that vessel, either on the cardiac or on the capillary side of the tumour, Mr. WARDROP conceived that if the circulation, either through the carotid artery alone, or through the subclavian artery, could be arrested, then such a diminution would take place in the force of the circulation within an aneurysm of the innominata, that a gradual coagulation of the blood would be en-

sured, fortifying the parietes of the tumour, and so preventing the bursting of the sac. This operation Mr. WARDROP successfully performed in the memorable case of Mrs. DENMARK. The operation was afterwards adopted in a case of aneurysm of the arteria innominata, by Dr. MOTT of Philadelphia. The *third* case of aneurysm of the innominata was similarly and successfully treated by Mr. EVANS of Belper; and a fourth case is now added by Mr. FEARN. The soundness of the principles on which the operation is based, the correctness of the reasoning which led to its original adoption, and its utility as a surgical proceeding, have received in these cases remarkable and important confirmation.

The annexed diagram distinctly shows the difference in each of the three operations for the cure of aneurysm:—In No. 1, a ligature is placed on an arterial trunk upon the *cardiac* side of an aneurysmal tumour, as proposed by HUNTER. No. 2 represents a ligature placed on an arterial trunk, on the *capillary* side of the aneurysm, as proposed by BRASDOR. No. 3 represents a ligature placed on the *capillary* side of *one branch* of the diseased artery, as proposed by WARDROP.

No. 1. *No.* 2. *No.* 3.



DIAGRAMS OF HUNTER'S, BRASDOR'S, AND WARDROP'S OPERATIONS, BY LIGATURE, FOR THE CURE OF ANEURYSM.

ASSAULT ON MEDICAL STUDENTS AT APOTHECARIES' HALL.

To the Editor of THE LANCET.

SIR:—Having attended at Apothecaries' Hall, to register, on Thursday last, October 20th, three days previous to the time notified for closing the books, I was a witness of one of those outrages which have been so frequently committed upon medical students by the officers of that establishment. On the occasion in question, I arrived an hour before the gates were opened, a precaution which, as my experience had proved, afforded me the only chance of getting registered at all. I may state to you that no attendance on any lectures whatever is recognised by the Apothecaries' Company, unless the date of commencement has been entered in their books; and for this important purpose they employ but a single individual between the hours of ten and one each day, for twenty-one days, the earliest part of which time is always required to be occupied by students, in London, in making preparatory arrangements, necessary upon their first coming up to town. The consequence is, that the fruitless attendances to register becomes a source of great inconvenience to the young men, many of whom, residing at a distance from the Hall, have had to go to register *several times without being able to effect their object.*

The loss of lectures in this way is enormous, and calls loudly for the abolition of a system which is not only irksome, but worse than useless. If this course of things continue, the least our rulers can do is to see that we are *decently accommodated* and *treated with proper civility* whenever they require our presence. I assure you, Mr. Editor, that on Thursday morning not less than one hundred and fifty of us were cooped together for some time in a damp entry, and that on the gate being opened, and a rush of necessity taking place into the interior of the court-yard, an officious beadle brandished about a constable's staff, disregarding the heads of the gentlemen around him, several of whom had their hats knocked in. A friend of mine, whom I know to be a peaceable and well-disposed youth, was so belaboured by this audacious varlet, that he would inevitably have fallen a sacrifice, had he not seized the fellow's wand of office, as the only means of escaping from his brutal violence. A party of workmen, who were standing by, ready for a fray, immediately made up to the scene of action, and having dragged the student for some distance, ejected him over the steps into the street, with a force that was well calculated to cause him serious injury. The present visit was this gentleman's *fifth unsuccessful attendance*, to his great inconvenience, having had, each time, about four miles to walk there and home again. Sayer, the master-beadle, had, however, the effrontery to tell the students, when he closed his books, that "had they but remained quiet, he would have registered every one of them, even had it kept him up until twelve o'clock at night to do so." A monstrous assertion, as regards the probability of his exercising so much patience and civility! The hired menials, elated with their achievement, entertained an idea, it would seem, of clearing the yard; for, on their return, they unceremoniously took a student by the collar, when the latter, perceiving all remonstrance vain, applied his fists with such effect to the face of the foremost of his assailants, that he was at once stopped in his brutal efforts, and slunk away. His associates manifested no disposition to continue the warfare. At this period some policemen arrived, but finding no occasion for their services, they quietly withdrew. An intimation having been posted up, that "no registration would take place until further notice," the students very peaceably retired, leaving the "jacks-in-office" to represent to their superiors an affair for which, no doubt, they expected to be rewarded. I have here, Sir, set before you a plain, unvarnished tale, from which I hope your readers will draw its proper inference. I am, Sir, yours truly,

AN EYE-WITNESS.

London University, Oct. 22, 1836.

EMPLOYMENT OF STRYCHNINE.

Dr. SCHAIBLE has recorded, in the *Mediz. Annal.*, vol. i. No. 1, p. 124, some observations on the administration of strychnine, which he has given in the following cases:—

First. In the commencement of paralysis, with atrophy of the right lower extremity.

Second. In complete paralysis of both lower extremities.

Third. In a boy affected with epilepsy, whose right arm commenced to fall away.

Fourth. In incontinence of urine.

Fifth. In dysenteric purging.

CASE I.—A strong, healthy man received a fall on his back, of so violent a nature that that he was unable to walk home; however, he gradually recovered from its effects under an antiphlogistic treatment, but he continued to feel a dull pain in the part, and for the last two months remarked that the right leg was falling away, that the foot was becoming lost, and from time to time he experienced a sensation of numbness and insensibility in the whole leg. The author being called in, considered this as a result of local inflammation of the spinal marrow, which he attempted to combat for fourteen days; but the paralysis advanced, and on carefully examining the vertebral column he

could discover ontrace of injury. He therefore commenced administering one-twelfth of a grain of strychnine, gradually increasing it to a quarter (Magendie's formula,) and employed, externally, frictions, with ointment of thyme and tincture of *nux vomica*.

On the third day the patient began to feel a pricking sensation in the limb. On the eighth day the sensation and motion were improved, and on the fourth week he was able to walk about a little with a crutch. After the lapse of two months he could take a short walk without aid, and at a still later period he came to visit the author on foot, at his own house, when the latter found that the extremity had entirely recovered its sensibility and power of motion, but the nutrition continued imperfect.

Case II.—A girl nineteen years of age, of, highly nervous temperament, was thrown into violent convulsions, in consequence of some fright, and brought in this state to the poor-house. The convulsive movements disappeared on the second day, and the patient recovered her consciousness, but both lower extremities remained paralyzed. Various remedies were employed without any benefit, and galvanism produced but slight passing relief. The author, finally, had recourse to strychnine, one-twelfth of a grain, morning and evening. On the third day the patient began to experience the peculiar pricking feel, and the evening dose was now carried to one-sixth grain. This produced evident amelioration, when a second convulsive attack appeared on the tenth day, and with it a recurrence of paralysis. After the disappearance of the convulsions the use of strychnine was resumed, and the tincture of nux vomica was employed externally. At the expiration of five weeks the patient was dismissed, perfectly cured.

Case III.—A boy, fourteen years of age, of unhealthy complexion and weakly constitution, was seized with an access of epilepsy in his twelfth year; the access recurred after the lapse of twelve months, after which the right arm remained paralyzed, and began to fall away. The patient had employed no other treatment than the vapour-bath. As the author could discover no cause for the paralytic state, he ordered purgation, with anthelmintic medicines, and then had recourse to the extract of nux vomica, with etherous extract of worm-seed. Several worms were now discharged with the stools. Friction, with the tincture of nux vomica, and the vapour-bath, were employed for four weeks, but with very little evident advantage. Strychnine was, therefore, given, in alternation with the above-mentioned doses, and after five or six weeks the patient began to make some use of his arm; unfortunately, however, the author lost sight of him at this period.

Case IV.—A weakly man, forty years of age, who had been much addicted to onanism, laboured for several years under incontinence of urine. In this case also, various other remedies had been tried without benefit, when he came under the care of the author, who administered strychnine, and ordered frictions over the pubis, with the tincture of nux vomica. The incontinence of urine immediately diminished, and in a few days disappeared altogether. It appeared, however, that the disease returned in a short time again, and the patient refused to submit to any further treatment.

Finally, the anthor affirms, that he has administered the extract of nux vomica, joined with gum arabic, and occasionally with decoction of colombo, with the greatest advantages in cases of dysenteric purging.

MR. WING'S COMMUNICATION.

To the Editor of The Lancet.

Sir:—In my letter to the Editor of The Lancet, as published in the last week's journal, were some errors and deviations from the original copy. You will greatly oblige me by giving insertion to the following, as part of the corrections which I wish to notice.

In the first sentence I must beg leave to observe, that the word "opportunities" was not repeated. Instead of "I have particularly had reason to concur in this physician's opinions and practice," &c., read, "I have had reason, also, to concur in several instances in this gentleman's opinions and practice relative to spinal affections."

The word "however" was not introduced in that sentence, which begins thus: "My object," and ending "with great respect and diffidence."

Instead of "if this reference be to Dr. Harrison," &c., read, "I must be permitted to assert, that Dr. Harrison's knowledge of anatomy, and of the animal economy, leads him to pursue in such cases no such practice."

For the following, "the advantages of rest," to the words "in his practice," read, "There the advantages of rest were not undervalued, were not overlooked, and, therefore, it appears to me both unjust, and most unfair, to hold out that this important auxiliary is ever neglected in his practice."

For the words "Simple deformity," ending with "in apparent health, uncomplaining of ill health," read, "in apparent and of uncomplaining health."

For the word "projected," read, "projecting vertebræ."

For the words "I have sent plates," read, "accompanying plates."

Instead of "Mr.," from an *error of the transcriber*, read, "Monsieurs Heine, Milli," &c.

Towards the conclusion, the words "learned knight" are inserted, but with the omission of the words "distinguished professor," which were used in connexio nwith he former expression.

From an alteration in the last sentence, the word "however" is again employed, although not contained in the original.

No notice was taken of my reasons as to delay respecting the difficulty of procuring the plates, &c.

I am, Sir, your obedient servant,

CHARLES WING.

22, Aberdeen-place, Maida Hill, Oct. 25.

NORTH LONDON HOSPITAL.

LONG PROTRACTED RHEUMATISM.—STRIKING EFFECTS OF HYDRIODATE OF POTASH.

FRANCIS TURNER, aged 30, was admitted August 10th, under the care of Dr. ELLIOTSON. A married man, manager of a wholesale grocer's business, of healthy family, and of temperate habits. About two years ago he caught cold, and has complained of flying pains all over his body ever since. Has not had gonorrhœa for eleven years. He first felt burning pains in the soles of the feet and heel, the pain then removed to the shoulders. During the day-time there was an indescribable pain about the fingers, which afterwards became benumbed. The pains of the soles, feet, and heel, were treated by liniments and leeches. He was under Dr. HAVILAND of Cambridge, who gave him infusion of bark and calomel, and told him it was rheumatism. The pain afterwards removed to his head and neck; he was then under Dr. LOVETT of Royston, who blistered him over the parts affected, and bled him. He was subsequently under Dr. PRICE of Margate, for almost twelve months. This spring he has been drinking the Buxton waters. As a last resourse he flew to the infamous quack pills of Morison, but these, he said, nearly killed him. From other remedies he occasionally obtained temporary relief, but the disease has not been subdued, though he has been rather improving since he left Buxton. His present symptoms are pain in the ankles and heel, and the right one is swollen. Weakness in the wrists and hands; sometimes feels pain on turning his head suddenly round. The right shoulder is very stiff, but not quite fixed, and the pulse is not so well felt at this, as at the other wrist. Tongue rather white; pulse 65, full. Bowels regular. To have four grains of the hydriodate of potash in solution, three times daily; common diet. The next day the dose was increased to five grains, and he says he feels rather better already.

13. Increase the dose to six grains—still improving.

16. Going on well, increase the dose to seven grains and a half.

Sept. 1. Since the last report the rheumatic pains have been gradually getting less, he has occasionally been troubled with a little cough, and a running from the nose, and smarting of the eyes. Pitch plaster to the chest.

3. As the last named symptoms still continue, let him decrease the dose to five grains, and let him have a blister to the elbow, as he complains of its being stiff.

29. Has been gradually improving since last report, having continued his medicine in the last named doses. He was discharged perfectly well on the 3rd of October.

Dr. ELLIOTSON in lecturing on this case, observed, that the gentlemen under whose care the patient had formerly been, were not to be blamed for neglecting to give the hydriodate of potash, as its effects in rheumatism were far from being generally known. It was a new remedy in that disease. The running from the nose, and edness of the eyes, were common effects of the medicine if long continued; the dose, under such circumstances, is to be reduced as in the above case.

TO CORRESPONDENTS.

As we have not yet had an opportunity of obtaining a statement of the terms of the contract which existed between Mr. KINGSTON and the Guardians of the St. Alban's Union, and as we have not in THE LANCET of this week sufficient space to admit of the curious *tête-à-tête* which took place at Somerset House between Mr. CHADWICK and the dismissed officer, we are under the necessity of deferring the further discussion of this subject, so deeply important to the profession, until next week.

ERRATUM.—Dr. Sigmond's lecture, page 155, line 53, for *delcterious* read *delicious*.

The letters of many correspondents are in type for publication next week.

We have received the letters of Mr. Wray, Medical Reformer, Mr. J. B. Harrison, Mr. Hy. S., and Obscurus.

A full report of the proceedings at the Bridge-House Hotel, on the 27th, will appear in the next LANCET.

OPERATION ON THE JAW BY Mr. LISTON.—The engraver has most unexpectedly disappointed us by not completing the sketch which should accompany the report of this case in time for publication this week. The report will appear in the next LANCET.